DIE CASTING ENGINEER

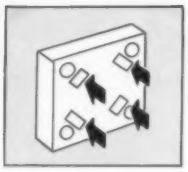
PUBLICATION OF THE SOCIETY OF DIE CASTING ENGINEERS / NOVEMBER, 1960

SHOW

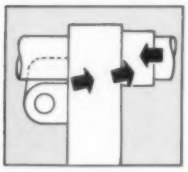
ISSUE

FOUR-CORNER LOCK-UP

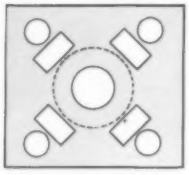
in Greenlee–B&T die casting machines offers you 7 benefits



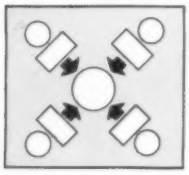
1. Each corner link is a strong, self-contained support for both plate and die.



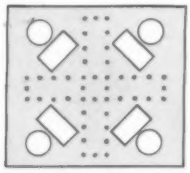
2. Short and direct transfer of loads on each corner minimizes bending stresses on the moving die platen and back plate.



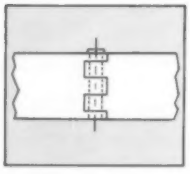
3. Reduces the area of unsupported moving die plate. Helps eliminate flashing and potential cracking of dies.



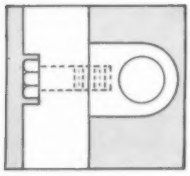
4. Prevents weaving of the link center axis (crosshead) and consequent unequal loading.



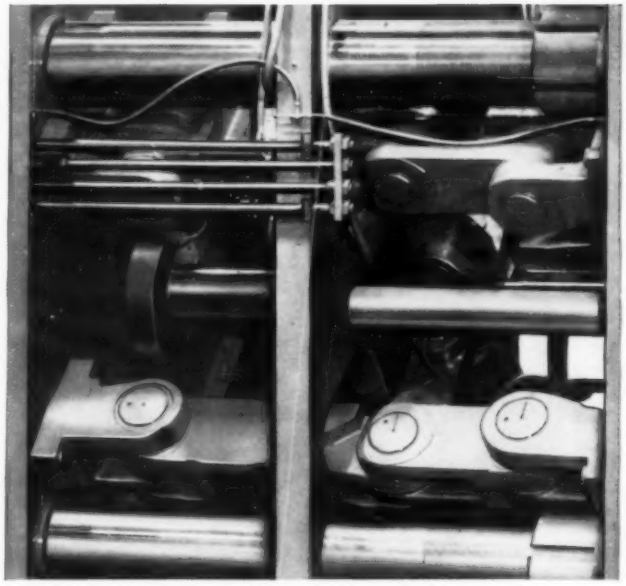
5. Permits a large area of both horizontal and vertical bumper pin ejection pattern.



6. Corner positioning of each link assembly results in equal and straight line loading of all pins and bearings in the link pivots.



7. Toggle anchors are bolted to the back and traveling platens. They are not subject to weld breaks or breakage as part of a casting.



Only in Greenlee — B&T Die Casting Machines will you find this unique toggle locking mechanism. Investigate its many advantages that help give you greater holding power, best die alignment and lower maintenance. Your Greenlee — B&T representative will be glad to arrange for a demonstration.

. . . OTHER GREENLEE — B&T DESIGN ADVANTAGES

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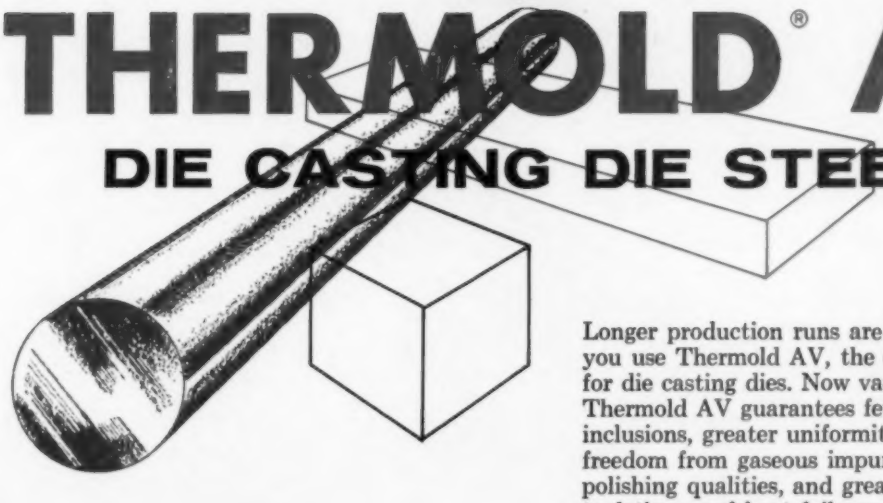

Longer production runs are assured when you use Thermold AV, the quality steel for die casting dies. Now vacuum degassed—Thermold AV guarantees fewer non-metallic inclusions, greater uniformity of structure, freedom from gaseous impurities, higher polishing qualities, and greater resistance to fatigue and heat failures.

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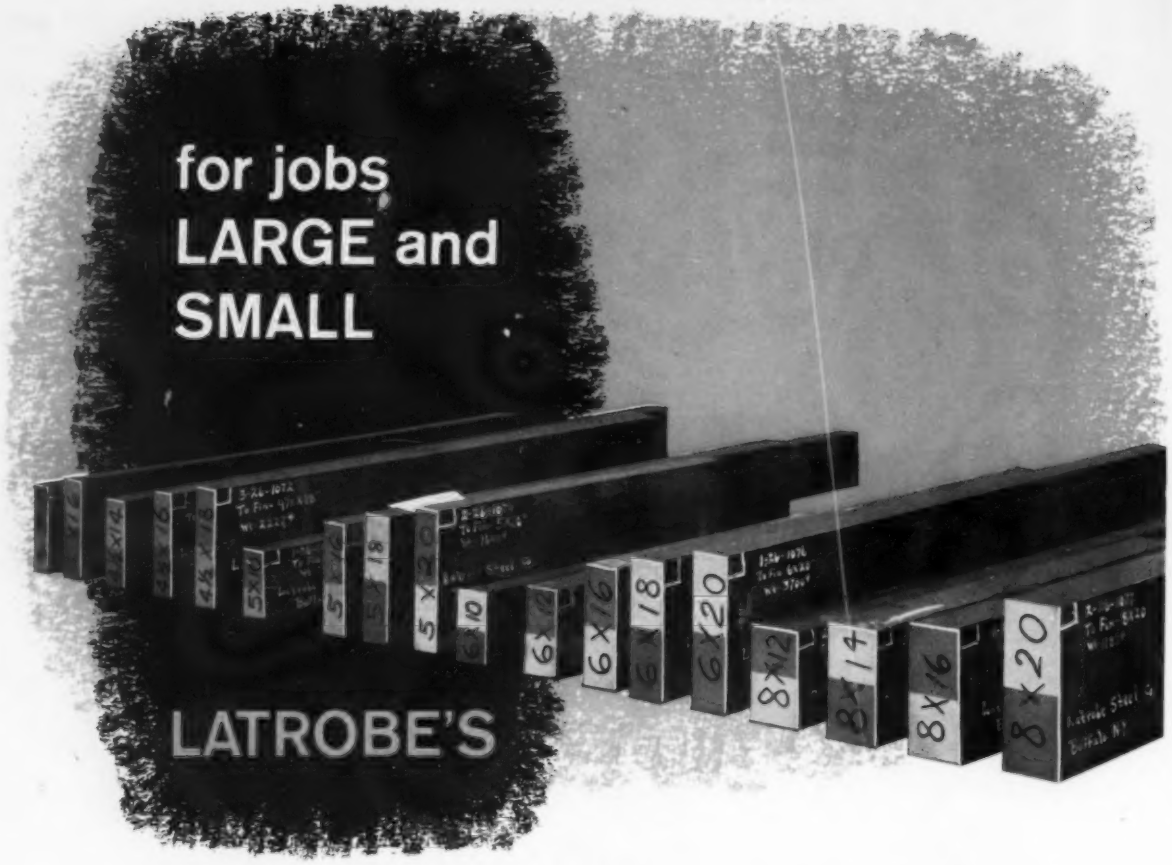

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Latrobe's VDC (Type H-13) die steel is regularly stocked at nearby Latrobe Steel Service Centers to meet practically all your die size requirements—large and small.

Regardless of die intricacy, you can always depend on VDC to give the ultimate in production. It is free from porosity and has superior impact strength . . . it is easy to machine, possesses excellent non-deforming properties and can be uniformly hardened to give excellent resistance to wash and erosion in service. VDC has a high vanadium content for magnesium or aluminum die casting service in temperature ranges up to 1200°F.

Call your nearby Latrobe Steel Service Center today . . . specify VDC for your next die casting die.

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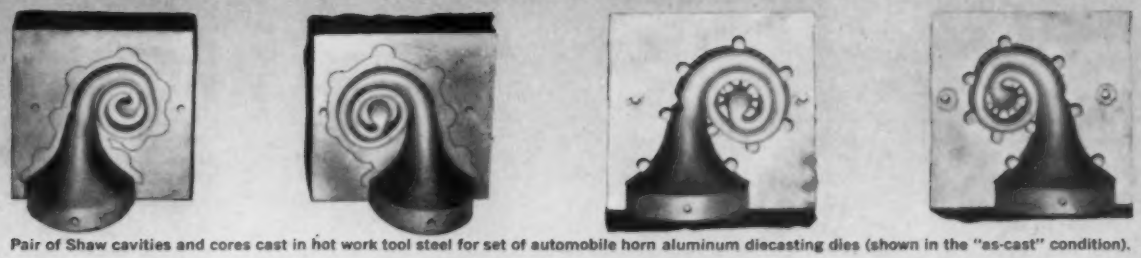
CIRCLE 3 READERS SERVICE CARD

THE SHAW PROCESS IS PLEASED TO PRESENT ITS NEW CERAMIC CASTING METHOD FOR THE DIE CASTING INDUSTRY

SHAW CAST TOOL STEEL DIE CASTING DIES



Pair of Shaw cavities and cores cast in hot work tool steel for set of automobile horn aluminum diecasting dies (shown in the "as-cast" condition).

For the first time, the Diecasting Industry can enjoy the advantages of producing its dies by this new casting process . . . a method of such precision that it exceeds machining in many cases. Having already been made and used by leading diecasters for several years, we can now announce that Shaw diecasting dies, cores and inserts, cast in the hot-work tool steels, have passed every critical test with flying colors. It is significant that only the Shaw Process, among all precision casting methods, has been able to satisfy the exacting demands of the diecasting diemaker. Below are some of the reasons:

Shaw Cast Diecasting Dies Actually Last Longer—The chill-cast, fine-grained smooth surface of the Shaw casting resists heat checking. The absence of tool marks eliminates dragging and abrasive wear. A one-piece casting, which would normally be made up of a number of inserts, eliminates flash traps.

Deliveries Are Much Shorter—Replacements Are Made Overnight—A simple aluminum, epoxy, or plaster pattern is first made, invested with slurry and cast. Once the pattern is completed, castings are often made overnight in H-11 & D-5 for zinc dies, H-13 for al & magnesium, H-21 for brass dies.

Die Costs are Often as much as 500% Lower—Even the most complicated forms are being cast in Shaw with less than a few hours labor involved after the pattern is completed. Savings are substantial. Complicated Shaw cast cavities have often been produced for **less than the cost of the bar stock alone!**

Higher Production With Fewer Rejects—The absence of insert flash traps, tool marks, and increased resistance to peening results in smooth operation, less down time, less die and ejector pin maintenance and fewer rejects. It has been found that the increase in the total number of good castings per day can be as high as 25%.

Better Finish—Producing a single Shaw casting to replace a group of small inserts eliminates hot spots and blistering...produces better thermal balance, results in finer plateable finish, sounder diecastings.

Rapid Replacement of Damaged, Worn Cavities, or for Engineering Changes—Damaged die components and sudden engineering changes can play havoc with production and delivery schedules. Keeping patterns on hand, Shaw replacement castings are obtained overnight.

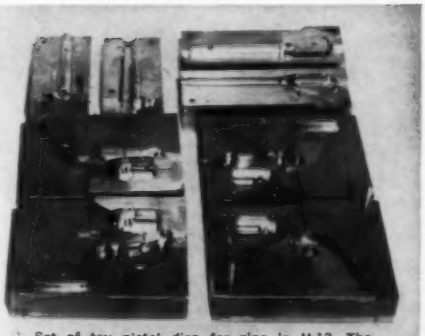
Less Deformation in Heat Treatment—Since the fine-grained cast structure of the Shaw-cast die component has no directional grain, it is not subject to the stresses set up by machining a forged bar. There is less movement during heat treatment and little fitting is required in the heat treated stage. In the event frequent annealing and reheat treatment for welding or other modification becomes necessary, users have found that the Shaw Cast die component (with its non-directional isotropic grain structure) gives less distortion.

For a copy of the 56 page brochure describing the Shaw Process, write Dept.

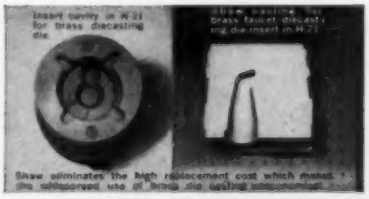
Shaw Process Development Corp., Division of British Industries Corporation, Port Washington, New York.

SHAW PROCESS

CIRCLE 4 READERS SERVICE CARD



Set of toy pistol dies for zinc in H-13. The first shot parts mated with such accuracy that no die rework was necessary.



Insert cavity in H-21 for brass diecasting die.

Brass faucet diecasting die insert in H-21.

Shaw eliminates the high replacement cost which makes the widespread use of brass die casting uneconomical.

Large aluminum diecasting die including bolster block. Castings weighed over 1000 lbs. as cast. Despite complex parting lines, all die sinking was eliminated.

Other applications of the SHAW PROCESS

SHAW PROCESS

Division of British Industries Corp., Port Washington, New York

You are cordially invited to see the Shaw Process, on display at Booth 513, Detroit Artillery Armory (Nov. 8-11) and Booth 344, Los Angeles Sports Arena (Nov. 14-18).

Something NEW in die cast machine firing

IndustriFire
Gas, Oil and Dual-Fuel Burners

Inexpensive operation and installation

The Iron Fireman IndustriFire burner uses a ¼ h.p. motor which eliminates large and expensive blower equipment and effects considerable savings in floor space.

Completely automatic

Pilot is automatically spark ignited, thus eliminating complicated and unsafe start-up procedure. Pilot and blower remain lit and operating only during burner operation, effecting savings in fuel and electricity.

Safe time clock starting

The Iron Fireman IndustriFire burner can be safely and automatically started at any time prior to the beginning of a work shift. The die cast machines will then be immediately ready for operation when the shift begins.

Electronic flame safeguard

Incorporating the Minneapolis-Honeywell RA890E Trotectorelay—the Iron Fireman burner assures you of safe light-up and operation. In addition, fully approved automatic safety shut-off valves give you the protection you require as well as inexpensive efficient operation.

Built by Iron Fireman

As a world leader in combustion engineering, Iron Fireman has designed these burners for rugged, dependable operation. The package burner is completely assembled, wired and tested at the factory before shipment.

Mail coupon for full information

IndustriFire Division, Iron Fireman Mfg. Co.
3147 W. 106th St., Cleveland 11, Ohio

Please send me complete information on IndustriFire burners for die cast machine firing.

Name_____

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CIRCLE 5 READERS SERVICE CARD

DIE CASTING ENGINEER

Volume 4 ☆ Number 5 ☆ November, 1960

Official Publication of
THE SOCIETY OF DIE CASTING ENGINEERS, INC.

CONTENTS

FEATURES

PRESIDENT'S MESSAGE 11
FIRST NATIONAL DIE CASTING EXPOSITION CALENDAR 13
EXPOSITION & CONGRESS CHAIRMEN 14
TECHNICAL CONGRESS AUTHOR AND SUBJECT HIGHLIGHTS . . . 16
EXPOSITION BANQUET AND LADIES PROGRAM 21
NOTES ON SDCE EUROPEAN TOUR 22
SDCE ACHIEVEMENT AWARD 23
THE ART COLUMN 25
HISTORY OF SOCIETY OF DIE CASTING ENGINEERS 26
SDCE PAST PRESIDENTS 28

DEPARTMENTS

CHAPTER NEWS 32
SDCE SUPPORTING COMPANY MEMBERS 46
ADVERTISERS INDEX 45

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The DIE CASTING ENGINEER is circulated without charge to all members of the SDCE and, upon request, to qualified engineering and management personnel engaged in die casting, metal finishing and the allied arts in the continental United States, including government and university personnel. Other subscriptions: Continental U.S., $6.50 per year; single copy, $1.75. Foreign countries, $8.00 per year.

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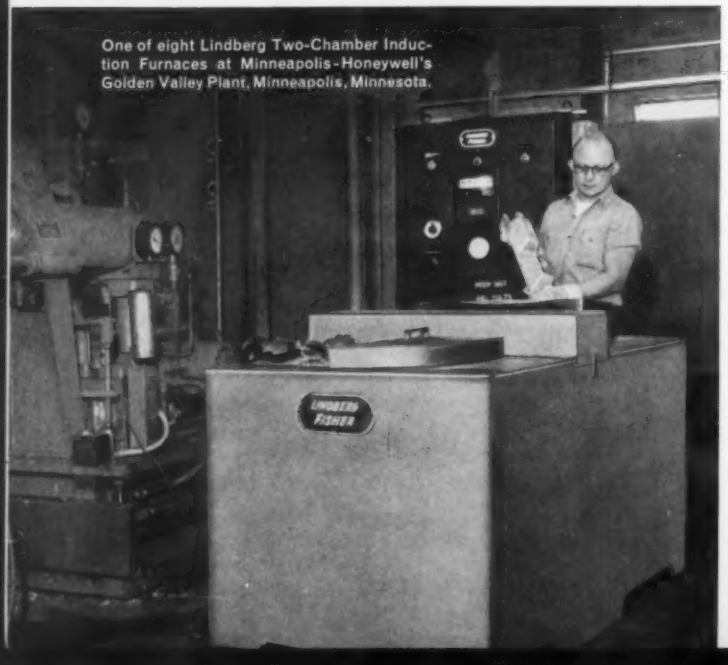
ART GEORGE has a good word to say for Lindberg Melting Furnace performance

QUOTE

Mr. Art George, Senior Production Engineer, Golden Valley Plant, Minneapolis-Honeywell Regulator Company, Minneapolis, Minn.

"Our installation of eight* Lindberg-Fisher Two-Chamber Induction Melting and Holding Furnaces has given remarkable service for more than four years. In this period, with the help of a well executed Honeywell maintenance program, the installation has been unusually trouble-free. Only one of the eight furnaces has required relining over this long period. Handling more than 1,000,000 pounds of aluminum and zinc annually, the installation has unfailingly provided the consistently high quality of metal our precision instruments require."

**Altogether, 44 Lindberg Furnaces are in operation in various Honeywell plants.*



One of eight Lindberg Two-Chamber Induction Furnaces at Minneapolis-Honeywell's Golden Valley Plant, Minneapolis, Minnesota.

These eight Lindberg-Fisher Induction Furnaces melt and hold aluminum and zinc for die casting gas valve housings and other component parts. They are located at the die casting machines where ingot and scrap can be melted and held at the desired casting temperature in one convenient unit. Magnetic fluxing and stirring insures uniform temperatures and consistently clean metal.

In any production process where aluminum needs heat there is Lindberg equipment to apply it most economically and efficiently. Furnaces for melting and holding, casting stations, re-melting or heat treating are available in all capacities, electric or fuel fired. Get in touch with your Lindberg Field Engineer (see your classified phone book) or write us direct. Lindberg-Fisher Division, Lindberg Engineering Company, 2481 West Hubbard St., Chicago 12, Illinois.

Los Angeles plant: 11937 S. Regentview Avenue, Downey, California. In Canada: Birlefco-Lindberg Ltd., 15 Pelham Ave., Toronto 9, Ont. Also, Lindberg plants in Argentina, Australia, England, France, Italy, Japan, South Africa, Spain, Switzerland and West Germany.

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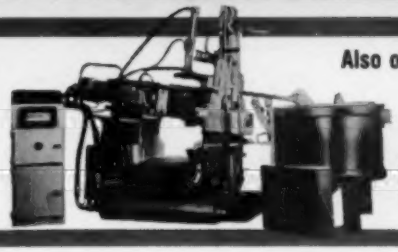
LINDBERG
heat for industry

GOING TO THE SHOW?

Then be sure to see the DCMT display of small die casting machines, featuring the new modular MAC 99, described below.



Also on display, the revolutionary

DCMT RAM

FULLY AUTOMATIC,

which averages 1500 shots per hour . . . **requires no operator!** 60 ton lock, 1 lb. capacity.

DCMT MAC 99

Automatic Cycling Die Casting Machine

15 Ton • 1 lb. capacity

FIRST TIME . . .

a basic modular Die Casting Machine with plug-in accessories, available at your option for utmost flexibility and efficiency!

FEATURES: push button panel (see below) • **90° convertible die unit** and **removable spacer plate** (see below) • **broader and huskier base** for greater stability and less vibration • **new solenoid-operated valve system** with **speed control** for die setting and shockless cycling • **exhaust mufflers** for quiet operation • Optional features: **electronic timer unit** (see below) for automatic cycling • **a brush device** mounted over the dies, cleans and lubricates the die faces (see below).

B.I.C. ENDORSED QUALITY

CIRCLE 7 READERS SERVICE CARD

PUSH BUTTON PANEL

Mounted on side of machine away from die parting line. Push buttons for manual cycle and for automatic single cycle. Electrically interlocked for safety.

ELECTRONIC TIMER UNIT

Entirely enclosed in a metal container. Can be attached instantly to the control panel with quick-connect plugs, and be placed away from machine.

4-WAY ADJUSTABLE AND REMOVABLE DIE UNIT

Can be adjusted with tie bars horizontally or vertically. Spacer plate is removed for center gating. These four adjustments provide greater die setting flexibility.

BRUSH DEVICE

Mounted over the dies. Cleans and lubricates the die faces. Phosphor bronze brushes placed in segments for desired adjustment and easy replacement.

BOOTH 513

Detroit Artillery Armory
November 8-11
(National Die Casting Exposition and Congress)

BOOTH 344

Los Angeles Sports Arena
November 14-18
(ASTE Western Tool Show)

For literature, write:

DCMT SALES CORP.

Division of British Industries Corp.
Port Washington, N. Y.

NEW CLEVELAND
Model 100 Die Casting Machine

IT'S TOPS
IN THE
100-TON CLASS!

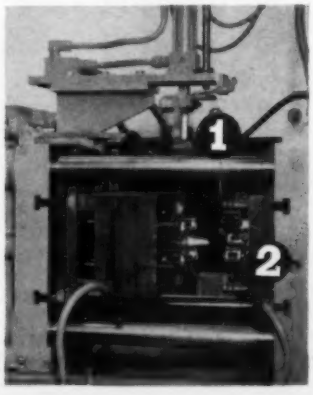
Many unique design features make this new 100-ton Cleveland tops in its class! With both the shot and die closing cylinders operated from the accumulator bottle, the Model 100 cycles well over 1000 shots per hour, depending on the type, size and complexity of casting. It is available any way you want it—as a standard, or automated, hot chamber machine; as a standard cold chamber machine; or as a cold chamber machine equipped with the Morton system of vacuum die evacuation, with or without automatic ladling.

The furnace mounts on casters so that it can be rolled away from the machine to remove the pot. In the operating position, locks on the casters prevent movement of the furnace. Note the minimum piping! Space is provided in the base of the machine for installing a single-unit water box and conveyor that will deliver castings to a bin or conveyor at the pump end of the machine. For hot or cold chamber casting, the machine is designed for two-position shot injection.

Most attractively priced, the new Model 100 gives you every modern feature, plus proven Cleveland dependability, for fast production of small size, hardware finish castings. Write direct, or call in a Cleveland field engineer, for full details.

MAJOR SPECIFICATIONS:

Size of Die Plates	22" x 23"
Die Thickness	19" max., 4" min.
Platen Thickness	3¾"
Tie Bar Dia.	2½"
Motor Hp.	15
Pump Capacity	22 gpm @ 1000 psi
Oil Reservoir Capacity	60 gal.
Shot Capacity	2.6 lbs. aluminum; 4.2 lbs. zinc with standard plungers. Other capacities with other size plungers.
Clamping Capacity	100 ton, strain gauge tested.



The Model 100 Cleveland can be automated to include such features as (1) stripper for removing the casting from the die; (2) automatic die lubrication, as well as low pressure die closing, water box and conveyor, automatic machine lubrication.

Sales Offices: Chicago • Cleveland • Detroit • Hartford • Springfield, N. J.

CLEVELAND AUTOMATIC MACHINE COMPANY
4916 Beech Street • Cincinnati 12, Ohio

Manufacturers of a Complete Line of Single Spindle Automatic Screw Machines and High Pressure Hydraulic Die Casting Machines

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From . . . . . .
The President's Office

SDCE And the Dynamic Die Casting Industry

Ollie J. Clayton, 1960 SDCE President

THE SPONSORING of the First National Die Casting Exposition and Congress in Detroit next month has been a major undertaking for the Society of Die Casting Engineers. It represents the beginning of a succession of aggressive endeavors by our Society in the primary interest of dissemination of knowledge and technical information in the die casting field.

Carried out largely by volunteer, non-professionals recruited from among our membership, this Exposition and Congress was planned, executed and completed within the short period of one year. To make this event a reality, our volunteer workers had to overcome many obstacles that often appeared to be insurmountable.

When you attend the technical sessions and view the exhibits, I am sure that you will find that every detail has been well-planned in the interest of educating not only die casting engineers, but also product designers, plant operating personnel, purchasing people and a host of other job functions closely associated with the die casting industry.

We are a relatively young, new technical society. In the short period of six years since our Society was founded, we have grown to a total size of ten chapters having members from all over the world. We have published on a regular basis our technical society publication, The Die Casting Engineer. With this publication we have been able to bring new ideas and extend knowledge in the specific industrial area of die casting.

Our standards committee is an active group which has made a great deal of progress in the standardization of certain machine components including clamping areas on platens, knockout patterns and ejection cylinders. We have also developed a method of rating the die locking pressure on die casting machines.

The Growing Technology of the Industry

Some idea of how the die casting industry is growing can be gained by the realization that since our Society was formed, shipments of aluminum die castings have increased by more than fifty percent to 370 million pounds in 1959. In the same period, shipments of zinc die castings increased by nearly forty percent to 650 million pounds.

The technology of the industry during this period has kept pace with the growth of the industry. The builders of die casting machines have standardized their machines, making die changes and inter-plant machine and die flexibility a reality. They have increased the capacity of their machines and improved the machine hydraulic systems.

Today we are die casting in the United States at higher pressures than any other country in the world. New automation principles have been applied to die casting equipment and processes. Such developments as automatic wiping, larger furnaces, better materials handling equipment, improved temperature controls. alloy quality control, pumping ladle and automatic ladles have made the die casting process more economical and raised casting quality.

Automatic flow of metal from the breakdown furnace to the holding furnace where it is pumped to the machine or automatically shot into the machine, combined with automatic cycling die casting machines that knock the part into a quench tank from which the parts move by conveyor into the trim line is automation of the most advanced type.

These completely automated lines offer American industry the one sure method of competing with lower priced labor in under-privileged parts of the world. Today these automation techniques allow one operator to run a battery of die casting machines.

The use of vacuum techniques in die casting machines is a development that only recently has reached the stage where it is feasible for productive applications. This method provides an overall improvement in the quality of die castings. It extends the range of alloy applications, permits automatic ladling of aluminum and permits the casting of thin cross sections. We have devoted an entire session to this subject in our technical sessions at the Congress. I am sure that you will find this session extremely informative and practical.

The Future of the Industry and SDCE

There has never been a time in its sixty year history when the future of the die casting industry has looked brighter. If you attend our What's Ahead session at our Congress you will hear described some really startling developments.

In 1961 for the first time an automobile will have a die cast engine block. Wheels, firewalls, door frames, axle housings and other major structural components for automobiles are being seriously considered experimentally as die castings. This could mean large volume production of big die castings. And with large volume comes the economic feasibility of exploiting automation and new production and alloy concepts to their utmost.

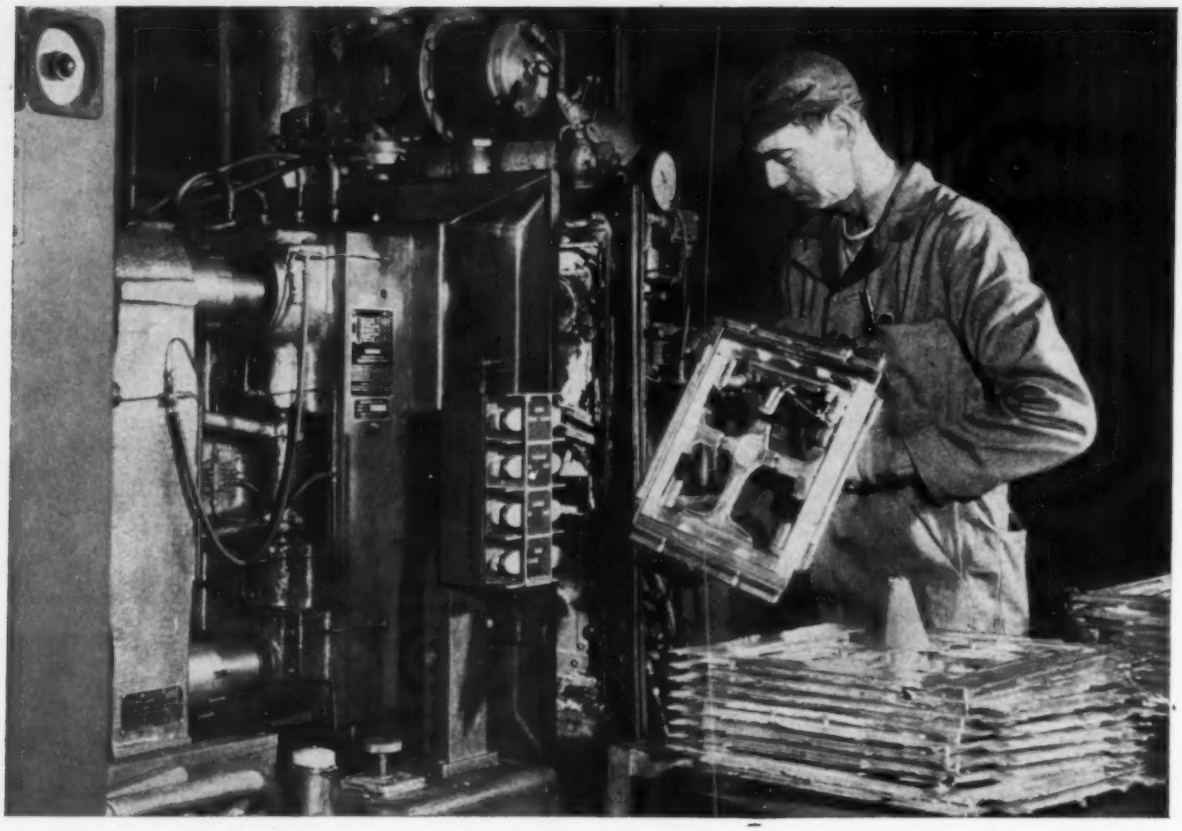
Home appliances, business machines and sporting goods are areas that have always made wide use of high-production applications of the die casting process. Their continuing growth can only stimulate die casting development.

In reality, the ability of the die casting industry to expand and grow is limited only by the knowledge that is made available to the industry.

There is a great deal of knowledge needed now in the areas of tool design, metallurgy and operating techniques. Product designers need more information on the die casting process including specific advantages, characteristics, limitations and applications.

This is where the Society of Die Casting Engineers fits into the future of the industry. We are making every effort possible to speed the dissemination of this vital information. We are forming new chapters throughout the country, we are planning other Expositions and Congresses, we are continually expanding our membership and we are initiating new plans for educational and practical research programs.

Our First National Die Casting Exposition and Congress is the opening kickoff to an ambitious and possibly daring program of carrying out the promise of our charter: The aggressive dissemination of technical information.



At San Jose Die Casting

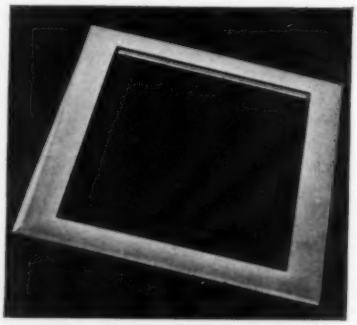
REED VACUCAST CUTS REJECT RATE BY 90%

produces higher quality, lower cost zinc castings

"I'm fully convinced that the REED Vacucast unit is a real business builder, an absolute must in assuring customers the highest quality, lowest cost zinc castings available," says William H. C. Bartlett, President of San Jose Die Casting, San Jose, California.

"Our customer, a large manufacturer of lighting fixtures, experienced a great deal of difficulty in obtaining high quality hardware finish castings. The reject rate was running well over 10%. Since we have been producing these parts on the Vacucast, rejects have been less than 1%. This has meant a considerable cost savings, since the rejects were not apparent until after the polishing and plating operations were completed. Parts now require only one buffing operation with a cotton wheel before plating. Particularly important is the absence of porosity along the trim line, which had formerly caused plating failures."

REED Vacucast gives you many advantages: thinner wall sections, improved finishes, increased cycling time, and a much lower reject rate. And the cost of adapting existing tooling to the unit is very nominal. For complete information about the REED Vacucast system call your nearest REED Sales Engineer today.



One of two lighting fixture units produced on the Reed-Prentice 1½ Zinc Vacucast Machine.

REED-PRENTICE

.....*division of*

PACKAGE MACHINERY COMPANY

EAST LONGMEADOW, MASSACHUSETTS

CIRCLE 9 READERS SERVICE CARD

SHOW SECTION

National Die Casting Exposition and Congress

CONGRESS

November 8-11, 1960
Detroit Artillery Armory
15000 W. 8 Mile Road, Detroit

Congress dates and hours:

Tuesday, November 8
9:30 a.m. to 12:00 noon
SESSION "A"—DIE DESIGN

1:30 p.m. to 4:00 p.m.
SESSION "B"—DIE BUILDING

—•—

Wednesday, November 9

9:30 a.m. to 12:00 noon
SESSION "C"—METALLURGICAL DEVELOPMENTS

1:30 p.m. to 4:00 p.m.
SESSION "D"—WHAT'S AHEAD IN DIE CASTINGS

—•—

Thursday, November 10

9:30 a.m. to 12:00 noon
SESSION "E"—COMPETITION TO DIE CASTING

1:30 p.m. to 4:00 p.m.
SESSION "F"—COST AND PROFIT

—•—

Friday, November 11

9:30 a.m. to 12:00 noon
SESSION "G"—QUALITY CONTROL

1:30 p.m. to 4:00 p.m.
SESSION "H"—VACUUM IN DIE CASTING

EXPOSITION

November 8-11, 1960
Detroit Artillery Armory
15000 W. 8 Mile Road, Detroit

Exposition dates and hours:

Tuesday, November 8
12:00 noon to 9:00 p.m.

—•—

Wednesday, November 9
12:00 noon to 9:00 p.m.

—•—

Thursday, November 10
10:00 a.m. to 5:00 p.m.

—•—

Friday, November 11
10:00 a,m. to 5:00 p.m.

BANQUET

Thursday Evening, November 10, 1960
Veterans Memorial Building
Downtown Detroit

Cocktails 6:30 p.m. Dinner 8:00 p.m.
Ladies are invited to attend the banquet.

EXHIBITION MANAGER

Arthur M. Clark, Manager
Foundry Manufacturing & Plant Engineering
Engine and Foundry Division
Ford Motor Company, Detroit

"The First National Die Casting Exposition is the realization of one of the major goals set forth by the Society of Die Casting Engineers. Included will be exhibits from national and international suppliers to the die casting industry. The majority of these suppliers are leaders in their field who will show the very latest in equipment, products and services. The Exposition will feature die castings, die casting machines, furnaces, die steels, metals, die components, tools and dies, lubricants, plating supplies and equipment, and a broad selection of other items in daily use by the die caster.

"In view of the variety of exhibits, the Exposition will be of great interest to technical and management personnel engaged in producing zinc, aluminum, brass and magnesium die castings."

PROGRAM CHAIRMAN

Harry D. Hall, Director
Process Development Section
Process Development Staff
General Motors Technical Center

"The Technical Congress has been fashioned after the results of a nationwide survey of die casters and suppliers conducted by the Society of Die Casting Engineers. Those responding expressed an overwhelming preference for a grouping of eight topics, the titles of which have been used in setting up the individual half-day sessions.

"Hitherto, communication among die casters has largely been effected through attendance at S.D.C.E. Chapter meetings or on a personal basis. For the first time, through this Congress, exchange of technical ideas has been placed on a national plane. In fact, the Congress will have an international flavor, as indicated by the reservations received from overseas die casters.

"Many people in the die casting industry have willingly contributed their time and effort to making this first Congress successful. We also owe a debt of thanks to the American Zinc Institute, Magnesium Association, and Aluminum Smelters Research Institute for their cooperation."

PROGRAM VICE CHAIRMAN

David C. Salatin, Head
Metal Casting Laboratory
Process Development Staff
General Motors Technical Center

CHAIRMAN

John L. MacLaren
Automotive Sales Development Engineer
Aluminium Limited Sales, Inc., Detroit

Mr. MacLaren has a Bachelor of Applied Science Degree from the University of Toronto and also a Master of Business Administration Degree from Harvard Business School.

REGISTRATION CHAIRMAN

Arthur Linzell
District Manager
Hydraulic Press Manufacturing Company

Mr. Linzell has a Bachelor of Science Degree from Yale University and is a registered professional engineer.

HOUSING CHAIRMAN

Ralph C. West
Detroit District Salesman
Aluminum Company of America

Ralph C. West has a Bachelor of Science Degree in Metallurgical Engineering from the University of Wisconsin. He has been associated with Alcoa since graduation in 1955.

BANQUET CHAIRMAN

Michael Herzina, President
Mold-A-Matic, Inc.

Mr. Herzina graduated from Henry Ford Trade School in 1933 and from Henry Ford Apprentice School in 1937. After employment with a number of mid-western tool and die shops, he established Mold-A-Matic, Inc. in 1948.

SPECIAL ACTIVITIES CHAIRMAN

Walter V. Flood
Sales Engineer
Electric Auto-Lite Co.

Mr. Walter V. Flood attended Ohio State University where he majored in Marketing. He has been employed at Electric Auto-Lite since 1948 in various Sales capacities.

AUTHOR AND SUBJECT HIGHLIGHTS OF THE TECHNICAL SESSIONS
First National Die Casting Congress

Latest trends and developments in the die casting field will be covered in eight technical sessions at the First National Die Casting Congress to be held at the Detroit Artillery Armory, November 8 through 11. Subjects to be covered in the form of technical papers and panel discussions have been chosen by the die casting industry itself based on an SDCE survey.

Authors and speakers are outstanding authorities from all areas of the die casting industry. They were selected to bring you the most complete technical program in the history of the die casting industry. Following are a few brief biographical sketches and abstracts of some typical papers. Reprints of all technical papers will be available at the Congress.

THE FIRST WATER-COOLED DIE CAST SIX CYLINDER AUTOMOBILE ENGINE BLOCK by Alfred F. Bauer, Assistant General Manager and Chief Engineer, Doehler-Jarvis Div., National Lead Company.

A complete description of the design considerations, casting problems, production rates and quality control techniques used in the manufacture of the aluminum die cast block for the six-cylinder American Motors Rambler engine will be presented.

Mr. Bauer holds a mechanical engineering degree from Stuttgart-Esslingen University in Germany. In the 1930's he managed the die casting facilities of the Mahle plant in Stuttgart, and came to the United States in 1947. In 1951 he joined Doehler-Jarvis after serving as a consultant for the Magnesium Division of Dow Chemical Company.

MATHEMATICAL DETERMINATION OF DIE DESIGN by John M. Caster, Research Staff, Syracuse University Research Corporation.

Metal flow considerations of die design will be explored. Formulae to be presented will relate porosity level of die castings to certain measurable variables, including gate area. Linear relationships developed will provide simplified solutions to day-to-day die design problems.

Holding a Master's Degree in Electrical Engineering, Mr. Caster has spent the last seven years in research and consulting work in the die casting field. He has applied instrumentation and observation techniques to observe the variables of the casting process. From this work has resulted improvements in design and production of die castings.

MOLD FABRICATION—COST REDUCTION AND CONTROL by Rolf H. Berg, VP and Treas., Atols Tool & Mold Corp.

Control and reduction of cost in mold fabrication will be covered in three phases: design requirements of the product produced by the tool; design of the mold itself; and actual building of the mold. Each phase will be analyzed with methods and suggestions developed for cost savings.

Mr. Berg is trustee of the Chicago tool and die shops and represents them in the board of trustees of the National Tool and Die Manufacturers Association. He also served as president of the Chicago Tool and Die Institute in 1957.

TEMPERATURE RELATED TO MOLDS AND CASTING PROPERTIES by Ross H. Dean, Sales Mgr. & Dir., Sterling, Inc.

Definition and fundamentals of good temperature control applied to dies will be presented. Although the basic approach is to die casters of aluminum and zinc, there will be reference to other metals. Related factors beyond temperature control equipment and its ultimate application will also be considered.

A Registered Professional Engineer, Mr Dean has served in various sales and management positions in the metalworking industry. He has several years experience in working with die casters, both large and small.

STUDIES ON THE INFLUENCE OF GAS CONTENT, PRESSURE AND MAGNESIUM CONTENT ON THE MECHANICAL PROPERTIES OF ALUMINUM DIE CASTINGS by Werner Ruegg, Head, Chemistry & Metallurgy Labs and Research Department, Injecta Limited

Mechanical properties of type Al-8 Si aluminum alloy will be discussed with regard to the influence of gas content, pressure and magnesium content. Some foundry experiments with normal, gassed and degassed metal as starting material for die casting and tests on corresponding die castings will complete the discussion.

Specializing in electrochemistry and physical chemistry, Dr. Ruegg received his PhD from Swiss Federal Institute of Technology in Zurich. He then joined Injecta Limited Die Casting and Manufacturing works at Teufenthal, Switzerland.

H-13 STEEL AS USED IN THE DIE CASTING INDUSTRY by Arthur E. Scholz, Tech. Serv. Eng., Customer Tech. Service Dept., Crucible Steel Co. of America.

Physical and mechanical properties of AISI H-13 hot work tool steel will be discussed with emphasis on two requisites important to die makers; internal cleanliness and size change in heat treatment. Other considerations will include resistance to softening, erosion and heat checking. General precautions which should be taken by die makers to prolong life of dies will receive coverage.

Mr. Scholz has served in various metallurgical positions in the steel industry. His most recent experience includes technical customer service to plastics, die casting and extrusion industries.

ANODIZING AND PLATING OF ALUMINUM DIE CASTINGS by Robert H. Harder, President, Lukens Aluminum Co.

By gearing an aluminum die casting operation to functional part production, die casters can produce custom die castings by adhering to fundamental procedures. They can compete in the custom market without a great deal of change in their equipment or procedure. Trouble spots in color anodizing and plating will be discussed in detail.

Mr. Harder has had varied experience including positions as foundry metallurgist and die casting trouble-shooter. He holds six patents, two of which concern alloys.

ALLOY CONTROL FOR ZINC DIE CASTINGS by J. L. Kimberley, Exec. VP and E. W. Horvick, Market Dev. Engr., American Zinc Institute

Needs for close chemical control of zinc die casting alloys with respect to impurities and addition elements will be discussed along with related metallurgical and electrochemical aspects. Practical suggestions will be offered concerning shop practices, in alloying scrap handling, reuse, alloy sweetening and fluxing. Factual test data will be used to emphasize the need for controls.

Mr. Kimberley (upper photo) has been engaged in the metallurgical field in various capacities including laboratory, production control, sales engineering and sales management. Mr. Horvick (lower photo) has also been associated with this field in technical, supervisory and marketing capacities.

THE EFFECT OF VIBRATIONS ON DIE CASTINGS by John E. Weber, Gen. Mgr., Southern Die Casting & Engineering Co. and Earle W. Rearwin, Chief Engr., Die Cast Machines, Reed-Prentice Div., Package Machinery Co.

In addition to providing a brief history of studies conducted to determine the effects of vibrations on molten and solidifying metal, this paper will cover its effects on finished die castings such as increased tensile strength, decreased porosity and faster cycling.

Mr. Weber (upper photo) has been associated with the casting industry for more than 20 years, serving in engineering or executive capacities most of the time. He holds various patents in the metallurgical field and also is the inventor of the Vibrocast method of casting. Mr. Rearwin (lower photo) has been associated with the die casting field for over 20 years. During this time he has served as plant engineer, plant superintendent, director of research and development and machine designer. In another paper, he will speak on the effect on product quality of cavity design, tool installation and machine operation.

HOW CASTINGS AFFECT QUALITY OF ELECTROPLATED DIE CASTINGS by Wm. H. Safranek, Asst. Chief, Electro-Chemical Engineering Div., Battelle Memorial Institute

Some causes and cures for zinc casting defects will be described. If the cures are coupled with new finishing procedures for flash removal, electro-polishing and plating, then improved corrosion performance at lower cost can be obtained.

Mr. Safranek is currently associated with various research projects aimed at developing finishes for protection against corrosion and finding new methods for producing metals. He is active in a number of technical societies and has authored or co-authored some 30 technical articles and chapters in books.

MODERN PERMANENT MOLDING AS A PROCESS FOR THE FOUNDRY by Frank S. Ross, Chief Engr., Permanent Mold Die Co., Inc.

Various innovations and developments in the permanent mold process for non-ferrous foundries will be discussed. A comparison will be made as to the relative cost factors when compared with other processes. Effects of mechanization will also be covered.

At the present time, Mr. Ross is engaged in the design of equipment related to all phases of non-ferrous foundries. He is actively affiliated with the permanent mold process, the centrifugal process and the die cast process.

THE ART OF IMPACT EXTRUSION—TODAY by James M. Rich, Asst. Prod. Mgr., Aluminum Company of America

Tooling for production impacts in short and long runs will be covered. Where impact extrusions compete with other metal fabricating, methods will also be discussed. A picture of the future of impact extrusions in the cost conscious market will be presented also.

Mr. Rich has been connected with production, development and sale of aluminum products for over 18 years. A number of these years have been spent in the field of impact extrusions.

SAND CASTING PROCESS—A COMPETITOR OF DIE CASTING by Thomas B. Pfaff, Asst. Foundry Supt., Pontiac Motor Div., General Motors Corp.

Technological developments in the field of sand casting aluminum that are tending to close the gap formerly existing between die and sand cast processes will be discussed. Development and introduction of new machines, materials and processes that were unheard of a few years ago and now are realities will be covered.

With over 20 years in the field of casting, Mr. Pfaff holds a master's degree in metallurgical engineering. He is presently responsible for his firm's aluminum program.

DICTAPHONE EXPERIENCE IN DESIGNING AND ENGINEERING COMPONENTS by F. W. Roberts, VP Engrg. & Res., Dictaphone Corp.

A discussion of where and why die castings are used by Dictaphone Corp. will be presented. Materials and machining and finishing operations for die castings will also be covered together with future prospects for thin sections, good finishes and magnesium zirconium die castings.

Mr. Roberts has been with the Dictaphone Corp. since 1941 and has successively held the positions of project engineer, chief design engineer, director of engineering and research, and vice president of engineering and research.

AUTOMATION IN DIE CASTING by Lee S. Garretson, Div. Process Liaison Engr., and Tom E. Nadeau, Sr., Die Cast Engr., Mfg. Engrg. Dept., Hardware & Access. Div., Ford Motor Co.

With a little cooperation from product designers, many more die castings will be made automatically in the near future. However, die casters must serve themselves by creating a climate for successful die casting to remain in a competitive position.

Mr. Garretson (upper photo) has been concerned with various phases of die casting with additional experience in magnesium and aluminum sand casting. Mr. Nadeau (lower photo) has been active in the field of die casting with Ford for 10 years.

PLASTICS—COMPETITOR OF DIE CASTINGS by Wm. O. Bracken, Plastics Sales Dev., Cellulose Products Dept., Hercules Powder Co.

Case histories and general discussion will be presented on rigid plastics. They have substantially improved resistance to heat and are corrosion-free, inherently colorful and require little or no post-finishing. These materials are gaining recognition in certain load-bearing applications conventionally supplied by die cast metals.

A past national president of the Society of Plastics Engineers, Mr. Bracken has worked extensively in the product development areas in the field of plastics.

SHORT RUNS by D. H. Naffziger, Process Engr., Delco-Remy Div., General Motors Corp.

All die casting producers have one problem in common: High tooling and set-up costs are difficult to absorb in short run piece prices. Three approaches to short run production will be discussed along with specific means of reducing short run costs in over-all planning and production.

Mr. Naffziger is at the present time in charge of process die casting and foundry development for Delco-Remy.

ADVANCES IN IMPREGNATION MATERIALS AND TECHNIQUES by George J. Caudron, VP, American Metaseal of Detroit

Impregnation of metals and materials is developing a major role as one of industry's processing techniques. The fact that impregnation is now considered in the original design of pressure-tight parts, or parts to be plated, enables impregnating equipment and processes to be dovetailed in a continuous production line.

Mr. Caudron has carried on extensive work in the metallurgical field, including powdered metals research and impregnation techniques and processes.

EFFECT OF DIE CASTING PRACTICE ON CASTING QUALITY by Al Sugar, Field Engr., Cast Master Div., Hydraulic Press Mfg. Co.

A reliable die casting machine, a properly designed die and a suitable alloy are essential before die casting variables and quality can be made to meet requirements. Points to be covered include controlled metal melting, molten metal delivery, sludge formation and casting design.

Mr. Sugar has some 30 years of experience in die casting and related industries. He has authored several publications on die casting, permanent mold casting and metal handling and holds patents on non-ferrous metal processing.

REVIEW OF METHODS TO OBTAIN IMPROVED CORROSION RESISTANCE FOR PLATED ZINC by D. Millage, Group Leader, E. Romanowski, Res. Chemist, and H. Brown, Res. Dir., Udylite Research Corp.

Plating systems for obtaining the most outstanding improvement in outdoor corrosion resistance of copper-nickel-chromium plated zinc die castings will be compared in detail. Surface preparation and sequences used in cleaning and plating will also be discussed. Importance of improved plating systems for automobile exterior parts and for marine hardware will be emphasized.

Mr. Millage (upper photo) has an extensive background in the field of metal finishing with emphasis in the electroplating area. Mr. Romanowski (center photo) has held various chemist positions with concentration in the electroplating field. Dr. Brown (lower photo), who received his PhD in physical chemistry from the U. of Michigan, also has an extensive background in electroplating.

VACUUM DIE CASTING—A RESUME OF PROGRESS TO DATE by Hiram K. Barton, President, Hiram Barton Associates

In the discussion of progress to date in the field of vacuum casting, the author will cover such aspects as hydraulic theory, boundry layer stability, injection pressures and thermokinetic phenomena. Various other factors will be covered in up-dating current knowledge in the area of vacuum die casting.

Mr. Barton has been in independent practice as a consultant on die casting for the last 20 years. In addition to his consultant work and theoretical investigations of metal flow, he has written extensively on the subject of die casting.

SOME EFFECTS OF VACUUM CASTING ON SURFACE FINISH by E. L. Simpson, Supt., Casting and Molding Dept., Bell & Howell Co.

Experiences of one company in the field of vacuum casting will be outlined with generalizations drawn. One of the most significant accomplishments to be discussed will cover surface finish where vacuum casting has made possible the application of decorative finishes which would not be practical otherwise.

Mr. Simpson has been associated with his firm for nearly 10 years and has had extensive experience in the area of die casting and plastic molding operations.

REED-PRENTICE

DIE CASTING NEWSLETTER

Hood or 'hoodless' vacuum die casting ...which offers you more?

Within the past few years interest in vacuum die casting has grown to a point where few, if any, major companies have not at least considered it. On both hot and cold chamber machines, the results that can be consistently obtained with vacuum operation have proved its worth.

Now one of the main questions is: What type of system should I buy? What advantages does the use of a hood, with the die moving in a vacuum, have over the 'hoodless' systems which evacuate the die after closure.

Variations with 'hoodless'

Reducing and holding air pressure at a predetermined level is extremely difficult without the aid of a hood. Even the use of very high vacuum to offset leakage across the die face offers no guarantee of consistency from shot to shot.

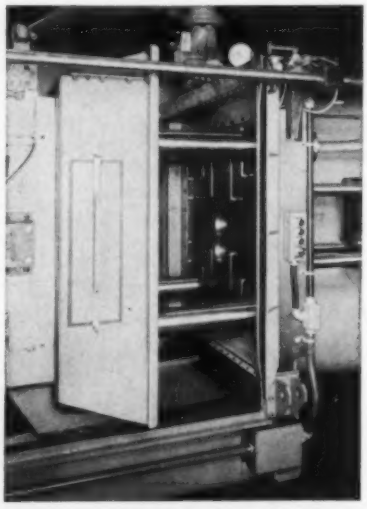
One general result is a degree of variation in metal flow which can affect both the surface finish and density of castings.

The use of a hooded system, where the vacuum is pulled *before* the die is closed, can eliminate such variables. This is the case in both the VACUCAST (zinc) and VACUFEED (aluminum) systems which have been developed by REED-PRENTICE.

More uniform operation

With a constant casting temperature, uniform evacuation is achieved on each shot with lower vacuums. This in itself helps assure a more completely uniform metal flow, an extremely important factor in the successful production of larger, thin walled castings that only vacuum operation makes possible.

This ability to handle difficult shots on either the VACUCAST or VACUFEED will continue to broaden die casting's uses. The design engineer can specify vacuum casting with confidence . . . the die caster knows he has far greater latitude in the jobs he can undertake.



Close-up of VACUFEED (aluminum) machine shows how the compact hood completely encloses the die area to offset leakage, protect operator against flash.

Die conversion, design

It is usually far simpler to convert existing dies to use in a hooded system. No provision need be made to eliminate leakage of air across the face, since the entire die operates within a vacuum. While gating must sometimes be altered, it is often possible to follow practices that would be impossible with standard equipment and are to the user's advantage.

Design of new dies for vacuum use with the REED-PRENTICE system can be simpler. The fact that it is better to design to one standard die thickness helps reduce set-up time.

Other advantages

In day-to-day operation, REED-PRENTICE vacuum equipment offers many benefits beyond obvious user advantages like the reduction of rejects. Zinc parts cast on VACUCAST machines can have superior surface and plating properties. On the VACUFEED, with its automatic ladling, it is practical to cast with aluminum alloys that cannot be used on standard equipment. Parts are cleaner, lighter, need less finishing.

First and foremost, this complete equipment is manufactured only by REED-PRENTICE. If you would like full details on either the zinc or aluminum vacuum system . . . how it can be applied to your operation . . . contact your nearest REED-PRENTICE Sales Engineer today.

REED-PRENTICE
.....division of
EAST LONGMEADOW, MASSACHUSETTS

PACKAGE MACHINERY COMPANY

BRANCH OFFICES: NEW YORK • CHICAGO • BUFFALO • CLEVELAND • DEARBORN • KANSAS CITY • LOS ANGELES

CIRCLE 10 READERS SERVICE CARD

Joseph G. Rayniak

Exposition Banquet

Thursday Evening, November 10, 1960

Veterans Memorial Building
(Ladies Invited)

Cocktails: 6:30 P.M. Dinner: 8:00 P.M.

Main Speaker: **Mr. Joseph G. Rayniak**
Vice Chairman of the Board and Manufacturing Research Director, Outboard Marine Corporation

Subject: **How Die Casting Built an Industry**

Entertainment Speaker: **Cecil M. Hunter**

Master of Ceremonies: **Earle W. Rearwin**

Presentation of SDCE Achievement Award: **Ollie J. Clayton**

THE MAIN speaker for the First National Die Casting Exposition banquet has a fifty-year die casting career that personifies industrial growth and better products through skill, imagination and perserverance.

Czech-born Joseph G. Rayniak has played an important part in the growth of Outboard Marine Corporation whose first year sales of $6,000,000.00 in 1936 soared to more than $170,000,000.00 by 1959. In achieving this high volume of sales, the cost per horsepower price of his company's products in 1960 is less than it was in 1941.

Mr. Rayniak first came to this country as a child whose parents first settled in Pittsburgh and then moved to Detroit. He served his apprenticeship as a toolmaker while studying drafting, special machine design and general mechanical engineering at night school.

His broad early experience was gained by working for E.M.F. (Now Studebaker Corp.), Burroughs Adding Machine Co., National Cash Register, Lima Locomotive Works, Packard Motors, Dusenberg and Willys-Overland Corporation. During this period he rose to a tool room supervisor, then up to factory manager.

He joined the Johnson Motor Wheel Company in 1920 as factory manager, thus beginning his forty year association with his present company. The company marketed its first outboard motor in 1921, a 35-pound, 2-horsepower model.

In 1936 Johnson Motors merged with Outboard Motors Corporation and Mr. Rayniak was named vice president in charge of manufacturing. In 1949 he became executive vice president and general manager of OMC. In 1953 he was elected president of the company. He assumed his present position in 1959 at the same time that his son, Joseph L. Rayniak was made executive vice president.

One of the examples of Mr. Rayniak's vision, plus teamwork with his associates in the die casting field, is exemplified in a 1,500-ton die casting machine in the Johnson plant that produces a steady stream of aluminum V-4 engine blocks for the new 50-horsepower Evinrude and Johnson outboard motors. This development came about as a result of several years of research work by the company.

Mr. Rayniak has received many awards and citations for his aggressive and foreseeing production methods and processes.

Today he lives in Waukegan and plays important roles in civic matters. He has been president of the Waukegan Council of the Boy Scouts; a Director of the Chamber of Commerce, Blood Bank, Port Authority and Water Board as well as the Illinois Manufacturers Association.

BANQUET TICKET ORDER BLANK

(The number of reservations for the Exposition Banquet is limited. It is recommended that you fill in this form and mail to SDCE Headquarters with your remittance promptly. Banquet tickets will be sent you by return mail.)

To: Society of Die Casting Engineers
19382 James Couzens Highway
Detroit 35, Michigan

Enclosed is $_____ for_____ Banquet Dinner Tickets @ $10.00 ea.

NAME _____

STREET _____

CITY _____ STATE _____

Ladies' activities program

Tickets may be picked up at the Women's Booth, Sheraton Cadillac Hotel on November 7th or 8th or at the West Eight Mile Road Armory on November 8th.

TUESDAY, NOVEMBER 8, 1960
FROM 11:30 A.M.-3:00 P.M.

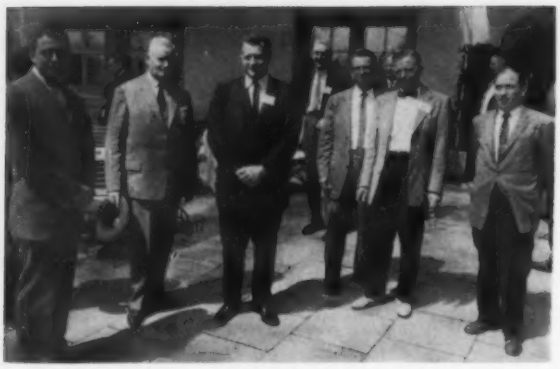
1. **SIGHTSEEING:** From the Sheraton Cadillac Hotel we will travel by air-conditioned bus through Detroit's near east side, past the fashionable old apartment district, Indian Village and Belle Isle. A social director and a guide will be present on all tours to point out places of interest and to answer questions.
2. **LUNCHEON:** We will enjoy a wonderful meal at the fabulous Maison Riviera, Detroit's newest, most fashionable gourmet restaurant, overlooking the beautiful Detroit River.
3. **FASHION SHOW:** An exciting production staged by Convention Services, Inc. in cooperation with Detroit's most chic couturiers.
4. **SIGHTSEEING:** Time permitting, you will be driven through Detroit to Lake Shore Drive which skirts sparkling Lake St. Clair. You will see Grosse Pointe, often referred to as the world's wealthiest residential section, where you will be shown the famous Ford and Dodge Estates.

WEDNESDAY, NOV. 9, 1960
FROM 10:00 A.M.-3:00 P.M.

1. **SIGHTSEEING:** Our bus will take us from the hotel through Detroit's west side to Dearborn, Michigan, capitol of the Ford Motor Company. You will see the Ford Plant, the Ford Rotunda and Greenfield Village.
2. **HISTORIC TOUR:** We will visit fascinating and historic Greenfield Village or the Greenfield Museum, home of ancient vehicles.
3. **LUNCH:** "Dutch Treat" snack at the Village.
4. **SIGHTSEEING:** On the return to your hotel we will pass many places of interest which will be called to your attention.

THURSDAY, NOV. 10, 1960
FROM 10:30 A.M.-1:00 P.M.

1. **SIGHTSEEING:** We will go by bus through the tunnel under the Detroit River to famed old Windsor, Canada. Our foreign visitors will need their passports.
2. **SHOPPING TOUR:** Exotic and beautiful items from England, France and other European countries can be purchased for much less in Canada.
3. **PLANT TOUR:** For those who don't wish to shop, our bus will go on to Walkerville where you will be taken on a conducted tour of the world-famous Hiram Walker Distilleries.
4. **SIGHTSEEING:** We will return to Detroit via the Ambassador Bridge, one of the largest suspension bridges in the world. From this vantage point you shall be able to see the sky lines of both Detroit and Windsor.



SOME SDCE MEMBERS gathered before a banquet at the Louis XIV restaurant in Paris. Fonderie de Precision were hosts at this affair.

VISITING THE BUHLER BROTHERS die casting plant in Uzwil, Switzerland. This company makes both die castings and machines.

NOTES ON SDCE EUROPEAN TOUR

By JOHN L. MacLAREN

ONE OF THE MAJOR ACTIVITIES undertaken by the Society of Die Casting Engineers in 1960 was the organized attendance by a group of members at the International Pressure Die Casting Conference held in the resort town of Stresa in Northern Italy during the month of May. Under the capable leadership of Harry Cagin (also a past president of the society, in 1958) forty-three SDCE members, most of them accompanied by their wives, visited die casting plants and toured in Britain and on the Continent before and after the Stresa Conference. Various members of the group observed the operations of twenty-one die casting plants in five countries.

The total value of this chance to observe so many top-flight die casting shops is difficult to assess, for each member of the party had an individual area of interest. However, it is sufficient to say that every man learned something of importance, possibly of very considerable importance, from the industrious and ingenious Europeans.

In this sense the trip was a huge success. When one also takes into consideration such other rewarding experiences as exposure to European ways of doing business and their local customs, and the opportunity to witness the wonderful scenery, art and architecture for which Europe is so famous, there is no question of the tour making a deep and lasting impression on all its members. Especially memorable was the warmth of the hospitality extended by the managements of the plants visited in Europe and their obvious interest in lending all assistance possible in pointing the way to the solution of shop problems. The Conference at Stresa offered much valuable technical information and also furnished tour members the occasion to exchange opinions and become better acquainted with the European die casters in attendance.

The tour was the first organized visitation by the SDCE abroad. Many die casters with whom contact was made, learned for the first time that there was an organization of engineers in the United States dedicated to the advancement of the arts and sciences connected with the die casting process. European

VINCE HOLMSTROM SPEAKS for SDCE group at a banquet at Teufenthal, Switzerland sponsored by Injecta, Limited.

SDCE GATHERING at the Hansel Werke plant, Meschede, Germany. This factory has sheet rolling and extruding operations in addition to die and permanent mold casting.

casters face the same problems of communications as we do here in an industry whose technology is subject to such rapid change. A counterpart to SDCE has been established in each country to promote the flow of ideas and information. Our new overseas friends were gratified to learn that the United States was not backward in this respect. They were also most interested to hear that the SDCE would be sponsoring a Technical Congress later in the year, as well as a concurrent Exposition of castings, equipment, supplies and services. As a result there will be a large international representation at Detroit in November.

In initiating technical communication between American and European die casters and suppliers, the SDCE has taken a most important step forward. There is knowledge on both sides of the ocean that those on the other side want and need, and organizations like SDCE are the media through which the interchange is effected. The next European Pressure Die Casting Conference will be held in 1963 in Germany. Now that the "ice has been broken," there will again be a substantial delegation of U.S. die casters and suppliers attending the function under the auspices of SDCE.

Plant Visits

Visits scheduled to European shops were eye-opening for many reasons. Somehow or another the notion had developed that overseas foundries, while particularly adept at permanent molding, were at a lesser stage of advancement as compared with the U.S. in die casting due to lower production requirements. This misconception was soon dispelled. In most plants the practices were just as up-to-date as our own, and many shops were working with equipment newer and of more modern design than that found in the majority of American jobbing shops. Quality standards were high and finishes obtained rivalled or exceeded our best. Output per machine in many cases was slow in comparison with our rates, but this could be partly explained by the comparatively low labor scales and de-emphasis on this factor of production cost. Shop housekeeping generally was excellent, although operator safety received scant attention. Several shops had installed extremely clever systems for production and cost control, and one outstanding Swiss operation revealed that direct plating of zinc castings out of the die, a relatively new technique in this country, was considered quite commonplace.

The following plants in Europe were kind enough to receive delegations of SDCE members. To them we wish to extend our gratitude for the privilege of viewing their operations and our thanks for the courtesies extended.

Fry's Die Casting, Ltd.	London, England
Sparklets, Ltd.	London, England
Birmingham Aluminum Casting Co., Ltd.	Smethwick, England
Wolverhampton Die Casting Co., Ltd.	Wolverhampton, England
High Duty Alloys, Ltd.	Slough, England
Fonderie de Precision, S.A.	Nanterre, France
Honsel Werke A.G.	Meschede, Germany
Postel Spritsguss A.G.	Cologne, Germany
Daimler Benz A.G.	Stuttgart, Germany
Buhler Brothers, Ltd.	Winkeln, Switzerland
Injecta, A.G.	Teufenthal, Switzerland
Aguzzoli	Milan, Italy
Ferrari	Novara, Italy
Fiat	Turin, Italy
Innocenti	Milan, Italy
Triulzi, S.A.S.	Milan, Italy
Necchi	Pavia, Italy
Olivetti	Ivrea, Italy
Ruffini	Turin, Italy
S.I.M.I.	Milan, Italy
Foundria San Paola	Rome, Italy
Foundria di Alluminio	Rome, Italy

SDCE ACHIEVEMENT AWARD ESTABLISHED BY SOCIETY, FIRST AWARD TO BE GIVEN AT EXPOSITION BANQUET

It is with real pride that the Society of Die Casting Engineers announces the establishment of the SDCE Achievement Award for outstanding achievement in the field of die casting.

The award is to be made bi-annually and will be based on the following five cardinal considerations:

1. Stimulation of broad usage of die-cast products
2. Creative application of scientific principles to the die casting process
3. Accomplishment in new product design
4. Development of new process techniques
5. Sponsorship and/or encouragement of educational programs.

These considerations have been established to lift the award above the level of simply picking "a good die caster." The man who receives the SDCE Achievement Award will truly be a leader in our field.

The recipient of the award is selected by the Society's board of directors. Since every Chapter is represented on the board, we can all be certain of a fair and honest selection. The first bi-annual award will be presented during the Exposition banquet on Thursday evening, November 10. Plan to be there so you can do honor to the deserving recipient of this award.

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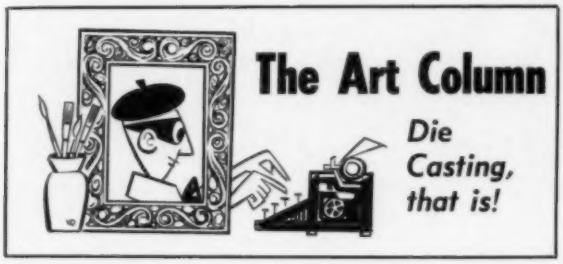

The Art Column

Die Casting, that is!

By EARLE W. REARWIN

Chief Engineer, Die Cast Machines

Reed-Prentice Div.
Package Machinery Co.

THERE FLOWS WITHIN THE VEINS of their author a generous percentage of Scotch blood: this—coupled with genuine pleasure in a good house trade—leads to certain basic concepts. The waste of money brings on a sense of deep grief, even pain.

Let us readily concede that money spent for good "ART" may be an investment. However, inasmuch as "ART"—as it is practiced in Die Casting—usually results in losses and frustration—it cannot be considered as anything except a regrettable waste.

It is remarkable, as well as very disturbing, to observe the terrific amount of duplication that is practiced in die casting developments. The greater percentage of this is caused by the fact that there is no history readily available in die casting. This—coupled to the natural feeling that every idea is original, leads to much needless waste of effort and money.

Spend to Better Purpose

This effort—and this money—could very well be spent to a better purpose, and not only show a profit to the spender but, sooner or later, to the entire die casting industry.

The S.D.C.E. was formed and is operated as a technical organization. As such, one of its avowed purposes is the dissemination of technical knowledge concerning die casting. Perhaps its greatest service to this industry can be its assistance in furnishing a history of known experiments—and their results.

This column has available for the use of the Society, a wealth of die casting "history." Observations from this history are available through the S.D.C.E.

Problems Are Invited

We wish to suggest that anyone wishing to take advantage of this fund of experience and information, do so. State your problem in a letter, ask us for information concerning what you wish to learn. We will give you as complete an answer as we have available and will try to secure for you additional information. This will cover some of the things that have been done, the results obtained and a technical observation as to why such results were obtained.

The letter of request will not be published except at the writer's direction, or with his permission. It will be treated as confidential if the writer desires—or so requests.

History Saves You Time and Money

This is not meant to take the form of direction on your efforts—it is meant only to allow you to start where the industry is now. You need not always be a pioneer—sometimes there are trails all ready to use. You can save much by following them to your starting point. Use history to save yourself time and money, and thereby secure more from your own efforts.

The First National Die Casting Exposition and Congress is about to be held. This has, as part of its program, rather extensive technical sessions. We sincerely hope you can attend, and that you may be able to secure an answer to some of your problems and, of equal importance, perhaps by an exchange of ideas and experiences, you may be able to help someone else solve his.

—— DCE ——

Auto Buyer Has Choice Of Five Aluminum Engines

Confused about which cars have the new aluminum engines?

Don't fret. There's a good reason.

Today you have a choice of five cars equipped with aluminum power plants. Later this fall there'll be more in the lineup, according to Aluminum Company of America.

General Motors is marketing four 1961 compact cars equipped with aluminum engines, including three new ones—the Buick Special, Oldsmobile F-85 and Pontiac Tempest, the latter having an aluminum engine available on request.

These cars are designed for an aluminum V-8 engine capable of producing about 155 horsepower on regular gasoline. The fourth, the Chevrolet Corvair, America's pioneer aluminum-powered car, also will be marketed in the 1961 lineup.

American Motors now sells a Rambler equipped with an aluminum engine block in a "straight six" design.

Later in the fall, according to Chrysler Corporation, the American car buyer will have a choice of three more autos with optional aluminum engines. The light metal engines in the Plymouth, Dart and Lancer will be a straight six-cylinder piece, but canted slightly to form what is called a "slant six."

In the early 1900's, aluminum engines were utilized in the "custom-built" autos of the day.

While not a new concept (Alcoa built six aluminum-powered autos in 1922, one of which was driven 160,000 miles) it required this decade's advances in foundry and machining techniques to provide aluminum engines with the economies needed to compete in a mass market.

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A History of . . .

THE SOCIETY OF DIE CASTING ENGINEERS, INC.

1954-1960

LATE IN 1954, in Detroit, Michigan, following a series of rather disappointing efforts aimed at getting basic information which would help him in his job of selling release agents (die lubricants) to die casters, George F. Griffenham sat down to evaluate his own peculiar problem. George had hoped to find the die casting industry well organized and represented by a group capable of giving him a complete picture relative to the use of die lubricants. He found that there was no central organization of any kind where he could mingle with others so interested, so that he might in this manner learn some of the facts and history of the business in which he was interested.

Accordingly, he held a series of conversations with local die casters, during which he asked one question: "Do you believe we might gain enough from an organization of die casting engineers to make the effort worthwhile?" It was the considered opinion of all that such an organization would lend help to many others in numerous directions.

Preliminary Meeting Called

George then selected at random a number of die casting concerns from the Flint, Bay City, Saginaw and Detroit, Michigan directories. To each he sent a questionnaire which generally explored the possibility of forming a local society of die casters. From the many replies received, companies were asked to send representatives to a preliminary meeting on September 1, 1954 to explore the feasibility and advantages of such a society.

The response was gratifying, and the following men met at the Park Shelton Hotel, Detroit, Michigan in what is now an historic meeting: Harris R. Shimel, Chevrolet Bay City; George F. Griffenham, Mergraf Oil Co.; J. R. Tucker and Richard P. Baribault, Alcoa; Martin Tufts and Arthur Tinetti, A.C. Spark Plug Div.; Marshall Aberle and John Miller, H & M Industries; John Matiello, General Die Cast Co.; Robert Cornell, Lite Metal Die Cast Co.; and John Lapin, Saginaw Bay Industries.

New Organization Favored

There followed a lengthy general discussion concerning reasons for the formation of a formal group, and possible conflict with existing organizations. It was agreed by the group that a new die casting organization would be advantageous, and was necessary. In a ballot taken, it is of interest to note that 8 voted yes, 2 voted perhaps, one abstained. The following temporary officers were chosen: Harris R. Shimel, Chairman; George Griffenham, Secretary; Art Tinetti, Treasurer; and John Lapin, Recording Secretary.

Each of the new officers was charged with bringing in new recruits, and a general notice was sent to as many companies as could be reached in a 200 mile radius. The first open meeting of the group was scheduled for October 4, 1954.

First Officers Elected

At this meeting held at the Veterans Memorial Bldg. in Detroit, 54 people gathered to a buffet dinner followed by a formal organization meeting. Plans were laid for incorporation and officers were eleected as follows:

President—Harris R. Shimel—Chevrolet Bay City
Vice President—Marshall Aberle—H & M Industries
Secretary—George Griffenham—Mergraf Oil Co.
Recording Secretary—John Lapin—Saginaw Bay Industries
Treasurer—Arthur Tinetti—A.C. Spark Plug
Librarian & Historian—M. R. Tenenbaum—Lester-Phoenix, Inc.
Trustee—Harry Eriksen—A.C. Spark Plug
Trustee—John Miller—H & M Industries
Trustee—Herbert Roushkolb—Cleveland Automatic Machine Co.

To top the meeting and set the stage for an ever increasing number of brilliant educational meetings Mr. Foster C. Bennett, Dow Chemical Co., presented a paper entitled "Magnesium Die Casting."

On July 22, 1955 the Society received its charter from the State of Michigan, and was thereby organized to "disseminate the knowledge in the arts and sciences of Die Casting; the finishing of metals, and allied arts. Its primary interest is in the increase of the fund of knowledge, setting up scholarships in the science of Die Casting, in research projects, and in advancing in other ways thru research and education the development of Die Casting." Offices were set up in a small space at 19370 James Couzens Highway on October 1, 1955 and on October 4, 1955 the Detroit Chapter was organized to be the first local chapter operating under the National charter.

Other Chapters Organized

Followed days and nights and numerous weekend meetings of this group of national officers to plan and execute, by determined effort, organization of the first local chapters outside of Detroit.

On June 10, 1955—The Western Michigan chapter was organized in Galesburg, Michigan. Officers elected were:

Chairman—James Thorpe—Nelson Metal Products
Vice Chairman—Nelson C. Smith—Production Aluminum Co.
Secretary-Treasurer—C. H. Lloyd—E. F. Houghton & Co.
Librarian-Historian—A. Miller

On June 15, 1955 the Northern Ohio chapter, later Cleveland, was organized at the Bank Grille, in Norwalk, Ohio. Officers elected were:

Chairman—Harry Cagin—Halex Die Casting Co.
Vice Chairman—Joseph A. Goldsmith—Buckeye Die & Mold Co.
Secretary-Treasurer—Lovell E. Pearch—Rex Buckeye Co.

Chicago Group Formed In 1956

On January 24, 1956—The Chicago Chapter was organized at the Chicago Bar Association, Chicago, Illinois. Officers elected were:

Chairman—Paul Berndt—Johnson Motors
Vice Chairman—Walter Davis—Admiral Die Casting
Secretary-Treasurer—Frank Cody—Carpenter Steel

On February 15, 1956 the Cleveland Chapter formed from the group organized at Norwalk on June 15, 1955.

On November 11, 1956—The Toledo, Ohio Chapter was organized. Officers elected were:

Chairman—Wesley Wight—Chevrolet, Toledo
Vice Chairman—Charles Hodan—Ford Motor, Sandusky
Secretary-Treasurer—T. E. Hansen—E. F. Houghton & Co.

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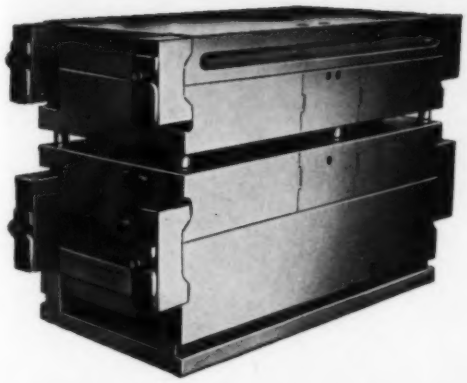

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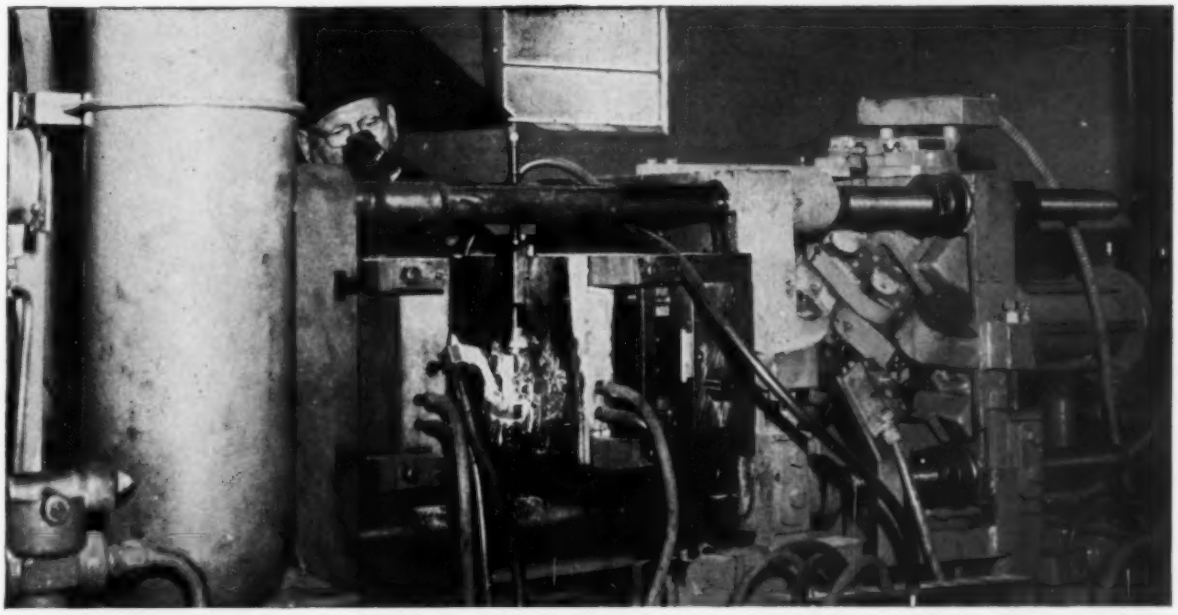

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PAST PRESIDENTS of SDCE

HARRIS R. SHIMEL

HARRY CAGIN

HARRY E. ERIKSEN

DEAN L. ROCKWELL

1956 Harris R. Shimel—one of the outstanding leaders in the formation of The Society of Die Casting Engineers—was National President for the year 1955-1956. He led in developing new chapters and in the progress of the Society as a whole.

A native of Deavertown, Ohio and educated in Ohio schools, Mr. Shimel is a graduate of General Motors schools of factory management and Basic Management, and has completed the G.M. Dale Carnegie course.

After varied activities during the seven years following graduation from high school, Mr. Shimel on Jan. 20, 1931 began his 25-year career with the Chevrolet Bay City Division of General Motors. For the final six years at Bay City he reached the positions of foreman and general foreman of the zinc die casting operation.

He left his position as Superintendent of Aluminum Die Casting and Steel Forging at Chevrolet Passenger Transmission Plant in Toledo, Ohio, at the end of June, 1956.

For the last four years Mr. Shimel has been selling service parts and giving consultant service to the Die Casting Industry.

He assumed the position of Executive Secretary of the Society of Die Casting Engineers on September 15, 1960.

1957 Harry Eriksen was the second president of the S.D.C.E. and has been active in the Society from its inception. A native of Michigan, he is a graduate of the General Motors Institute at Flint.

Associated with the AC Spark Plug Division of General Motors Corp. for several years, Mr. Eriksen was Chief Process Engineer For Die Casting for that company. He also served in the Navy.

Mr. Eriksen joined the Chrysler Corporation late in 1955 and spent more than a year in planning Chrysler's entry into

CONTINUED ON PAGE 36 ■

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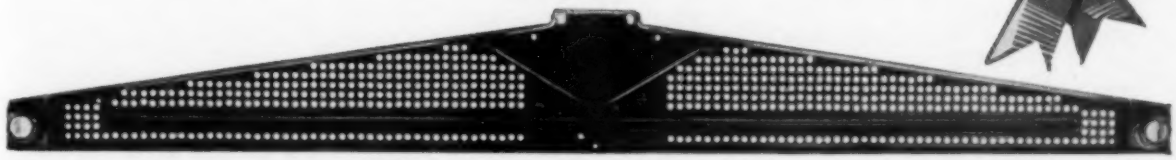

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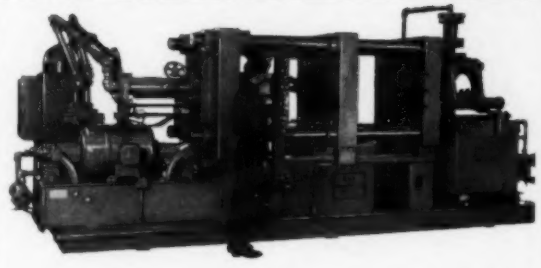

Hydraulically operated plunger gooseneck model BH-600, with strain gage proven die locking pressure of 600 tons, produced the grand prize winner for A & A.

CONGRATULATIONS TO A & A on their achievement of manufacturing this exceptional wave guide die casting. The casting, having an unprecedented 515 cored holes, was made to the most exacting requirements and tolerances. Two slots running almost the entire 32 inches of casting length are only .007 inches wide, and a flatness within .002 inches end to end is achieved as specified. A perfect cast finish is also a must, as the part is hard chrome plated for wear resistance.

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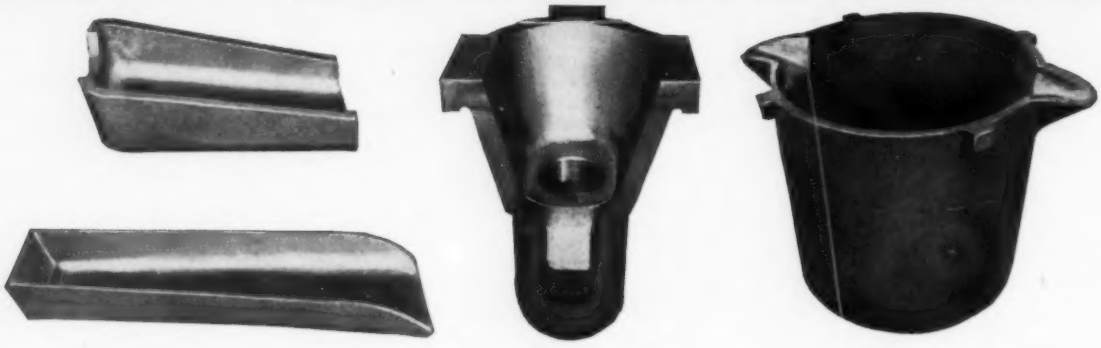

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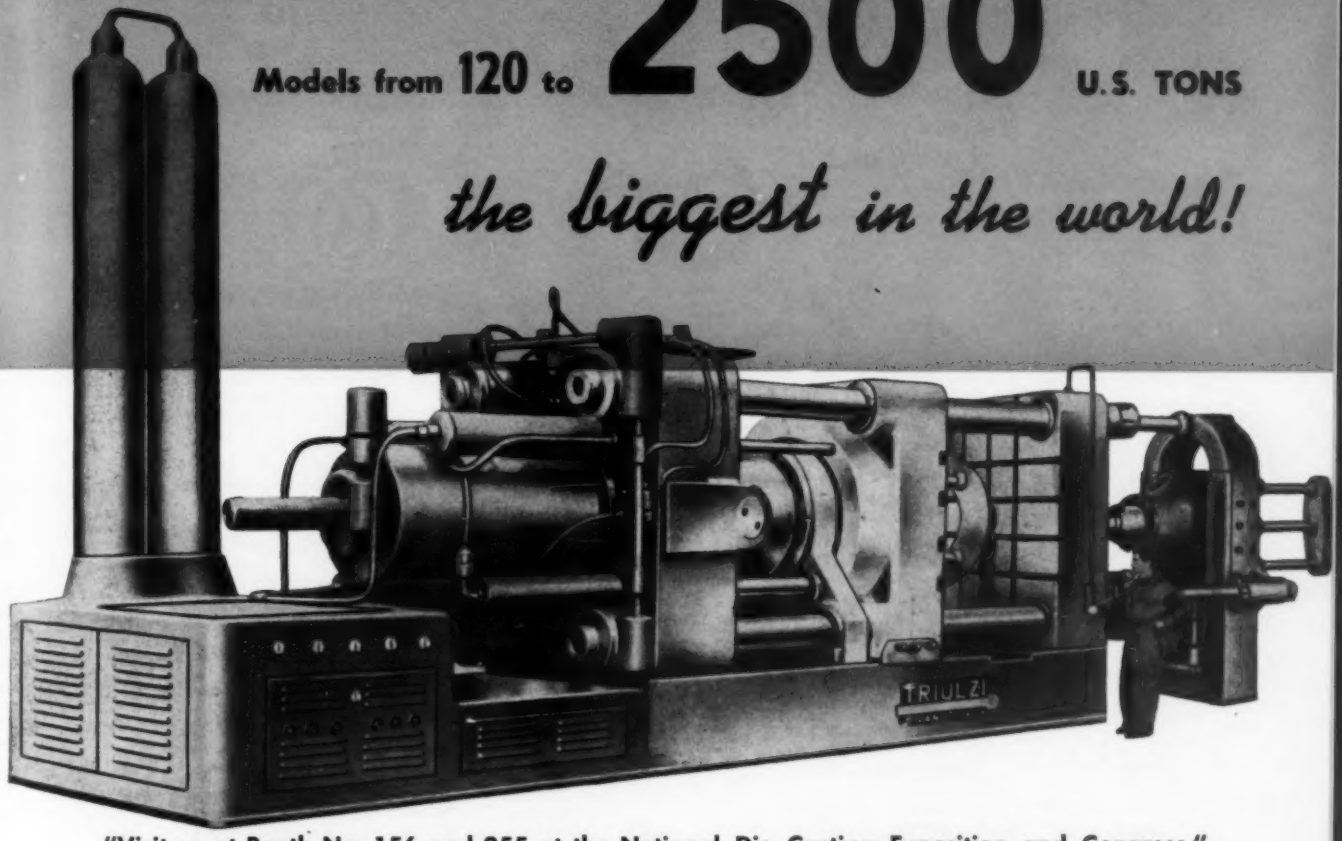

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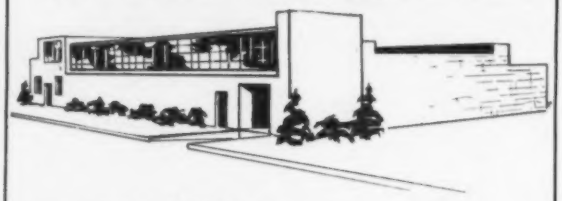

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United Mineral & Chemical Corp.

A complete line of belts, sheets, rolls and discs on cloth, paper and fiber backings.

CIRCLE 18 READERS SERVICE CARD

CHAPTER

DETROIT

1 The Detroit Chapter of S.D.C.E. enjoyed an informative talk by Ray P. Dunn at its dinner meeting October 4. The guest speaker, who is technical director of Lindberg-Fisher Division, Lindberg Engineering Co., Chicago, discussed "Proper Melting and Handling of Aluminum Can Save You Money."

A member of S.D.C.E. and other professional societies, Mr. Dunn has worked with Die Castings for more than 18 years as consumer, producer and supplier and some 9 years ago taught a one-semester course in "Die Casting" at the Illinois Institute of Technology.

At the October meeting the Detroit Chapter was pleased to be host to Mr. Waichiro Nakashima, chief of the Foundry Department, Aichi Kogyo Co., Ltd., Division of Toyota Motor Co., Ltd., Kariya-City, Aichi-Pref., Japan. This company builds the well-known "Toyopet" automobile.

The chapter was pleased to be host at its September meeting to a member of the Society from Mexico—Mr. Kurt E. Hampe, ingot salesman for Alan de Mexico S.A.

TOLEDO

4 An excellent turnout marked the Toledo Chapter dinner meeting on October 11, the gathering of 60 die casters included eight visitors from the Detroit Chapter, and the S.D.C.E. executive officers.

The highlight of the evening was a panel discussion on Die Design, with Mr. Norman G. Leach, chapter chairman, presiding.

The four members of the panel were:

Mr. Duncan Hanna—Partner in Die Cast Designs, Detroit.

Mr. Ollie Clayton—Owner of Clayton Engineering and President of S.D.C.E.

Mr. Robert Gilchrist—Chief Engineer of Schultz Die Casting.

Mr. Nelson Schneider, Tool Designer, Schultz Die Casting.

This chapter, we are pleased to note, is definitely on the upgrade.

CHICAGO

5 "It's Time to Take a Look at Magnesium" was the topic of Mr. Francis L. Burkett's talk before the dinner meeting of the Chicago Chapter on October 6.

Mr. Burkett, of the Dow Chemical Co., Midland, Mich., discussed the characteristics of magnesium for die casting and how it is processed—including melting, die casting, trimming, machining and finishing operations.

The speaker is a Research and Development Engineer in the Metallurgical Laboratory of Dow Chemical. A major portion of over a decade of research has been devoted to problems pertaining to the die casting process and product—specifically automatic feeding of molten metal to cold chamber die casting machines and development of alloys.

Following Mr. Burkett's talk a short colored movie entitled "Make Way for Magnesium" was presented.

NEW YORK

7 A notably enthusiastic dinner meeting of the New York Chapter on September 28 was addressed by Mr. John Atols on an "Interpretation of Die Casting Intangibles."

President of the Atols Tool & Mold Corp., Mr. Atols is a member of Chicago Chapter #5 and was Chapter Chairman

in 1957. In that year he spoke at the New York group's first chapter meeting in November and made a big hit.

The speaker outlined potentials of automation for the die

Pictured above at the September Meeting are left to right: Bill Vack, John Thomas, Earl Mannenburg, Ray Moser and George Fey.

casting process and presented present trends and future potentials in large die castings and die casting dies.

The meeting was attended by Mr. John Miller of the Detroit Chapter and Mr. Harris Shimel, National Executive Secretary.

CENTRAL NEW YORK

9 "Recent Developments in the Production of Improved Die Casting Steel" was the subject of a talk by Mr. L. A. Hauser of Universal Cyclops Steel Corporation at the September 27 meeting of the Central New York Chapter.

The speaker drew on his 16 years of experience in the steel making field to present a message both interesting and educational to all concerned with Die Casting.

National Executive Secretary Harris Shimel, who attended the meeting with Mr. John Miller of the Detroit Chapter, reported a great deal of enthusiasm was evidenced at the meeting.

NEW ENGLAND

18 The fine spirit of the New York meetings was matched by the gathering of the New England Chapter on September 29. This group broke a precedent of two years of meetings to hold a September meeting. They did so as a convenience to Mr. John Atols, whose services as dinner meeting speaker were sought, and who addressed the New York Chapter on the previous day, as noted above.

Mr. Atols repeated his discussion of "Interpretation of Die Casting Intangibles" of September 28. He had addressed this group on January 23, 1958 on "Die Casting, Die Design and Gating Problems," and many chapter members had expressed the desire to have him back.

Chapter Chairman Ernest W. Brix had the pleasure of Mr. Atols' company on the European tour and notes that he was

CONTINUED ON PAGE 44 ■

Dalkrom
TOOL AND DIE CORPORATION

Years of Recognized Experience

DESIGNERS and BUILDERS

PLASTIC
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DIE CAST
(ZINC and ALUMINUM)

MOLDS
(TRYOUTS)

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TOOLS

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CIRCLE 19 READERS SERVICE CARD

DCMT "Ram" Features "Di-Saver" Safety System

The DCMT "Ram" fully automatic zinc die casting machine now features a new, ultra sensitive pressure switch with infinite adjustment, in series with a wide tolerance micro-switch which feels foreign matter, flash or a stuck casting between the dies as they lock up. Any unejected casting or foreign matter will immediately cause the die to retract and stop the cycle. Recycling commences after the brush device has cleared the obstruction.

The DCMT Ram is fully automatic so that one operator can take care of four or more machines. It is designed specifically for high speed, averaging 1500 shots per hour.

— DCE —

Hartfield Healy Supply, Inc. New Latrobe Distributor

Hartfield Healy Supply, Inc., 420 Niagara Street, Buffalo, N.Y., mill supply house, has been named distributor of tool and die steels produced by Latrobe Steel Company, Latrobe, Pa.

The Buffalo firm will service tool steel users with tool bits, hardened and ground rounds, bevel cut-off blades, chisel blanks and drill rod.

Gordon W. Hartfield, president, and Alvin H. Segerlin, sales manager, will direct activities on the Latrobe Steel products.

— DCE —

Die Casting Machines

A new 12-page bulletin available from The Cleveland Automatic Machine Co., 4932 Beech Street, Cincinnati 12, Ohio, describes the complete line of Cleveland High Pressure Hydraulic Die Casting Machines—100, 250, 400, 650, 850, 1000 and 2000 ton models.

Details are included on such advanced optional features as machine automation and vacuum die casting.

The Scientific Approach To Solution of Some Die Casting Problems . . . in

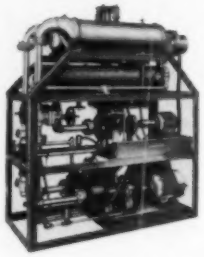
THERMOLATOR®

DIE TEMPERATURE CONTROL

For Die Casting and Permanent Molding

ZINC
MAGNESIUM
ALUMINUM

COMPLETELY AUTOMATIC



Since it is the *Rate of Removal of the Heat of Fusion* which controls molecular formation governing the quality of the casting, the THERMOLATOR SYSTEM effects control of the rate of removal of heat from the die by rapid recirculation of heat transfer liquid at controlled temperature through adequate channeling in the die. Dramatic improvements are thus obtained in:

SURFACE FINISH
TENSILE STRENGTH
WARPAGE
DIMENSIONAL STABILITY
DIE LIFE
RATE OF PRODUCTION

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CIRCLE 20 READERS SERVICE CARD

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AUTOMATED PERMANENT MOLDS
SPECIAL ALUMINUM FOUNDRY MACHINES

PERMANENT MOLD DIE COMPANY, INC.

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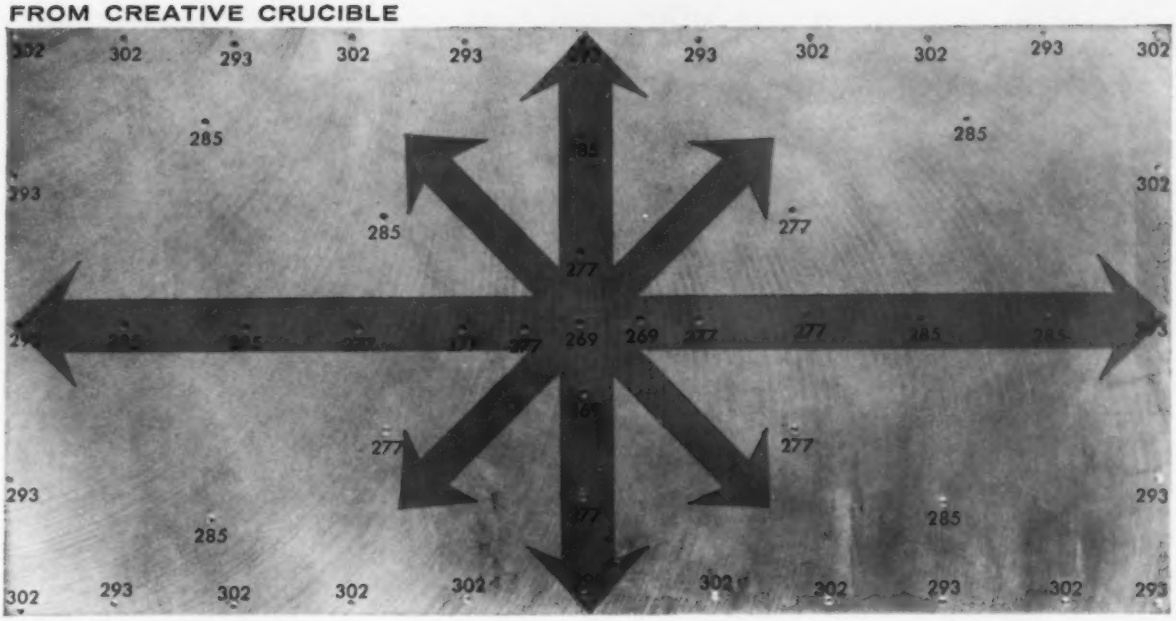
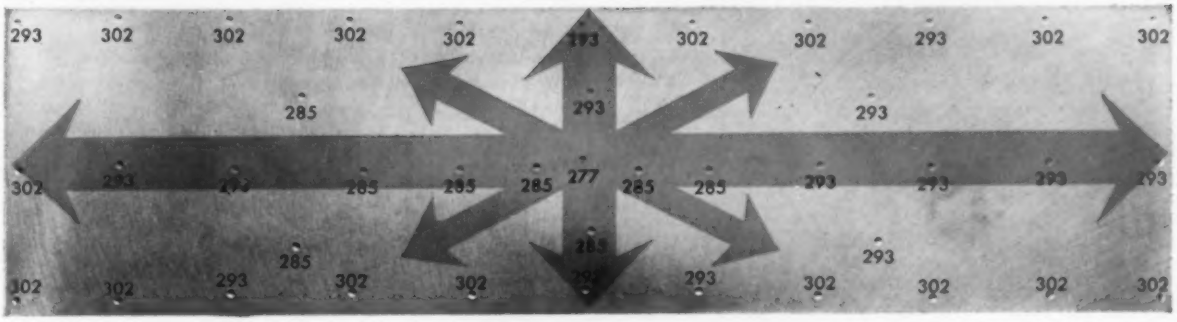
CIRCLE 21 READERS SERVICE CARD

FROM CREATIVE CRUCIBLE



20" x 10"



20" x 5"

CSM 2

with positive, high hardenability

Now you can make larger plastic molds and die casting dies—for longer runs—and get better finishes!

Notice the small hardness gradient—across the surface and from surface to center—of these typical blocks of prehardened CSM 2. This small gradient indicates the more uniform hardness of CSM 2—and assures you of at least 5 major benefits:

- more uniform polish from top to bottom of cavity
- greater resistance to washing at center or bottom of cavity
- more positive shut-off surface—particularly in internally landed molds and dies
- more uniform machining characteristics from top to center of cavity
- elimination of heat treatment of most plastic injection molds and zinc die casting dies in sections up to 14" to 15" thick.

Complete details on Crucible CSM 2—either prehardened or annealed—are readily available through local Crucible steel service centers. For data, call the center nearest you or write: *Crucible Steel Company of America, Dept. TG27, Pittsburgh 30, Pa.*

CRUCIBLE STEEL COMPANY OF AMERICA

CIRCLE 22 READERS SERVICE CARD

DROP IN AND SEE US • SOUTHERN DIE CASTING & ENGINEERING • BOOTH 440

VIBROCAST®

. . . the new revolutionary process for increasing tensile strength in die cast products . . . to be introduced at the National Die Casting Exposition & Congress.

SOUTHERN DIE CASTING & ENGINEERING

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BOOTH·440

NDCE&C • NOV. 8-11

CIRCLE 23 READERS SERVICE CARD

PAST PRESIDENTS

■ CONTINUED FROM PAGE 28

the aluminum die casting field. He set up the Corporation's die casting plant in Kokomo and became its first plant manager.

1958 Harry Cagin — president of S.D.C.E. in 1958 — has been Factory Manager of Halex Die Casting Company, Cleveland, Ohio, since 1951. He was vice president of this Society in 1957 and Chairman of the Cleveland Chapter in 1956-1957.

Mr. Cagin won his B.S. in Mechanical Engineering in 1936 at Case Institute of Technology and his M.S. in Applied Mechanics from Case in 1941. He was an instructor in mathematics 1941-1954 at Fenn College Evening School.

Prior to his association with Halex Die Casting Co. Mr. Cagin was Engineer from 1936 to 1945 at Superior Die Casting Co. and Supervisor of the Die Casting Department—1945-1951—at Nelmor Manufacturing Co., both at Cleveland, Ohio.

Mr. Cagin was Chairman of the S.D.C.E. European Conference Tour this Spring and as such authored a comprehensive and interesting report on the tour for the July issue of the DIE CASTING ENGINEER.

1959 Dean L. Rockwell — fourth president of the Society — is a charter member of the Detroit-Saginaw Valley Chapter. Prior to 1959 he had held successively the offices of Publicity Director, Trustee and Vice President.

Mr. Rockwell has been a supplier to the die casting and metal finishing industries for 12 years—for the past few years as president of his firm, the Clifford-Rockwell Company, of Detroit.

He was born on a farm in Cass County, Michigan, 48 years ago and is a graduate of Eastern Michigan College. He has since done graduate work at the University of Michigan, taught and coached athletics and served in the Navy. He also spent 16 years as a part time professional wrestler in the U.S., Canada and England.

This Spring he and Mrs. Rockwell left on a trip to Europe, the culmination of which was the Olympic Games in Rome, where he officiated at the wrestling championships.

■ CONTINUED FROM PAGE 38

ing young teachers of metallurgy. Presentation was scheduled for October 18 during the Society's 42nd National Metal Congress and Exposition in Philadelphia.

FOR SALE

LAKE ERIE ALUMINUM DIE CASTING MACHINE
Model HV 300, New in 1950
Electrical and hydraulic systems rebuilt in 1958

STROMAN MELTING FURNACE, 500 pound capacity, complete with controls

Oakman Mfg. Co.

14700 Puritan Ave. Detroit 27, Mich. BRoadway 2-3911

CIRCLE 24 READERS SERVICE CARD

DIE CAST MACHINERY INC.

DIE CASTING MACHINES—USED
SEND FOR LIST OF FIFTY MACHINES, TEN FURNACES.

MODERNIZED—REBUILT—AS NEW—
Lester Phoenix HHP3XS 17.5" PreFill $15,000.00
Lake Erie 250 tons ZINC (2) $8,750.00
HPM Plastics 150 H 6A 6/8 oz. $8,750.00

PLASTIC MOLDING MACHINES—TOO.

BY Joseph Kaul, (Tel OX 1-4921) Fred C. Ziesenheim M.E. (Tel—DU 2-0640)
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ARTCO
for 1961

Pictured is a **heavy duty reciprocating handpiece** which is especially suitable for filing, scraping, stoning and polishing. It is light in weight and accommodates tools with shanks up to ¼" in diameter. The reciprocating speed can be varied by use of a transformer or rheostat from Zero to 3500 strokes per minute and the length of the stroke from Zero to ¼" long. Weight 24 ozs.

See Our Demonstrations In Booth 511

The new **Dot Welding Process** is a Revolutionary method whereby Metal Pellets are heated to fusion temperature by a short pulse of high density electricity and is used for filling cavities, undercuts, scratches and other imperfections in castings, forgings, dies and molds.

Preheating is not required since the weld is confined to a small area, this feature also eliminates the burning of large areas around the welded spot. The repaired spot can be filed, finish ground and polished, right after welding, making it almost invisible.

AMERICAN ROTARY TOOL CO., INC.

159 GREAT NECK ROAD, GREAT NECK, L. I., N. Y.

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CIRCLE 26 READERS SERVICE CARD

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DIECASTERS ENJOY BETTER RESULTS WITH OUR FLUXES

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CHEMICALS & METALS CO.

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ALUMINUM

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atlantic
is the
ANSWER
for
FLUXES
that produce the
CLEANEST METALS

LET US HELP YOU SOLVE YOUR MELTING PROBLEMS

ZINCOREX SERIES
ALUCO and IMMUNITAS SERIES
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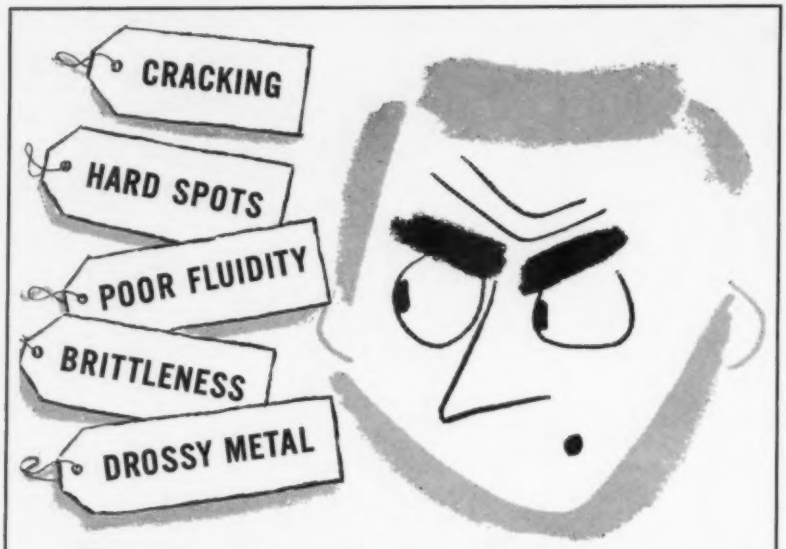
CIRCLE 27 READERS SERVICE CARD



...Rejects knocking your profits for a loop ?

The alloys you're using may be at fault—

- Do they ACTUALLY meet specifications?
- Do your casters have to "make allowances"?
- Is the Inspection Department working "overtime"?

Then it's time to be SURE!

For good casting results your alloys must fulfill a considerable number of specific requirements. For instance, good fluidity to reproduce fine detail, fill out thin sections; stable properties to yield good surface texture, provide adequate mechanical strength; plus all the particular qualities to meet your casting needs.

See how HB&S start-to-finish quality controls save you time and money . . . help to eliminate rejects . . . guarantee you alloys always 100% "on spec."

Write TODAY for Henning's ALL-NEW "Reference Book and Guide on Zamak (Zinc Base) Die Casting Alloys." It gives valuable production and design data for die casters and engineers . . . and it's yours for the asking.

YOUR CASTINGS CAN BE NO BETTER THAN THE ALLOYS YOU USE.

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SMELTERS AND REFINERS OF ALUMINUM, BRONZE, BRASS, ZINC, LEAD

Dependable service since 1922

CIRCLE 28 READERS SERVICE CARD

PEOPLE In Industry

• **John E. Krickl** has been appointed Western District Sales Manager by Lindberg Engineering Company. He will have headquarters at the expanded Lindberg West Coast plant at Downey, California. He will be in charge of all sales of the company's complete line of heat treating process line, melting and holding, induction heating, kiln, salt bath and pilot plant equipment.

— DCE —

• **James J. Keeley, Jr.** has been appointed Eastern Area Sales Engineer for Precision Castings Company, Cleveland, producer of aluminum and zinc die castings. His background covers more than 20 years in the foundry field, with experience in sand, permanent mold, and die castings. Based in Wayne, Pa., he represents the company in New Jersey, Delaware, Maryland and eastern Pennsylvania.

— DCE —

• **Robert S. Reimers,** Clarendon Hills, Ill., has been appointed a technical service representative of Foundry Services, Inc., Cleveland, Ohio. With an extensive background in applied metallurgy, he will represent the Foseco product line in northern Illinois and Iowa. The company manufactures chemical and metallurgical aids for treating molten metals, molds and dies.

— DCE —

• **Lawrence M. Weitzel,** president of Mechanical Specialties Company of Los Angeles, was named to the United States Trade Mission to France which was scheduled to leave early in October for six weeks of intensive meetings with French businessmen, industrialists and government officials.

The mission is under sponsorship of the Department of Commerce to foster and increase the emphasis on international trade between the two countries.

— DCE —

• **Dr. Harold W. Paxton,** 33-year-old Carnegie Institute of Technology associate professor of metallurgical engineering, was named to receive the American Society of Metals' $2,000 Bradley Stoughton Award for outstand-

CONTINUED ON PAGE 36 ■

REBMANN PRODUCTS CORPORATION

Die Cast Dies . Plastic Molds . Kellering . Duplicating

RPC

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The 180-cycle Multiductor, a low-cost static frequency converter, permits the use of induction on heating and melting applications where costs were previously prohibitive.

THE NAME WITH THE FAMILIAR RING!

The Multiductor, one of several Power Sources... another major product line of AM for the heating or melting of metals by Induction.

"induction heating is our only business"

Ajax Magnethermic CORPORATION

GENERAL OFFICES
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TRENTON DIVISION
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Youngstown 1, Ohio

CIRCLE 30 READERS SERVICE CARD

EJECTEZE

RELEASE AGENTS USED IN DIE CASTING ZINC, ALUMINUM AND MAGNESIUM

Dense, bright, non-porous castings. Actually cleans dies, prevents further build-up and eliminates stickers. Pin lubricants and anti-solder agents built-in.

WATER MIX SERIES FOR ALUMINUM AND ZINC

Can be mixed with cold water without elaborate mixing equipment. Emulsions are stable and will not split or separate.

EJECTEZE 100 SERIES FOR ZINC
EJECTEZE 150 SERIES FOR ALUMINUM

SOLVENT TYPES

EJECTEZE 700 SERIES FOR ZINC
EJECTEZE 750 SERIES FOR ALUMINUM AND MAGNESIUM

PLUNGER TIP LUBRICANTS

Automatic and manual application

CANQUENCH

Non Staining, Oil Free, Water Soluble Quenching Fluid

CANTON LUBRICANTS CO.

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DETROIT 28, MICHIGAN
TExas 4-1442

CIRCLE 31 READERS SERVICE CARD

HISTORY . . .

■ CONTINUED FROM PAGE 26

Office Space Increased

There followed a period of growth and expansion together with some firm entrenchment, during which time office space was increased at the 19370 address.

On November 1, 1955 Mr. Tenenbaum was appointed by the Board of Directors to take over the Treasurer's position for the National Society.

On October 20, 1956, a CPA was put on the staff to audit and supervise the National treasury and its financial records.

On November 30, 1956, Mr. M. R. Tenenbaum, acting as temporary secretary, established the National Standards Committee, which worked actively for 3 years to establish first Die Casting equipment standards which are being published now.

On October 2, 1957, following the regrettable resignation of George Griffenham, Mr. Tenenbaum took over the dual responsibility of treasurer and acting executive secretary.

In 1957, Mr. Harry E. Eriksen of General Motors Corp., A.C. Spark Plug division, Flint, became President.

Magazine Launched In 1957

In *March, 1957*, the Society printed the first issue of DIE CASTING ENGINEER, a quarterly publication, and in March, 1960, it advanced to a bi-monthly of known stature.

In 1958, Harry Cagin of Halex Die Casting, Cleveland, was elected President of S.D.C.E.

During these terms of office we established:

New England States Chapter #18, October 23, 1957

New York Chapter #7, October 24, 1957

Indiana Chapter #25, November 21, 1957

In 1959, Dean L. Rockwell of Clifford-Rockwell, Detroit, was elected President.

On February 17, 1960, the Saginaw Valley Chapter #2 was formed.

New Headquarters Chosen

In February, 1959, with a now permanent employee in Mrs. H. M. Jackman,

CONTINUED ON PAGE 41 ■

J & J BURNING COMPANY

CLOSE TOLERANCE EJECTOR BOX WELDMENTS & PRECISION BURN OUTS MADE WITH ELECTRIC EYE PLATE BURNING MACHINES CAN HOLD ± 1/64 WHEN REQUESTED. ELIMINATES COSTLY MACHINING. BLANCHARD GRIND CAPACITY 100 INCHES. WE STOCK PLATE ALL THICKNESS.

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Warren, Michigan
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CIRCLE 32 READERS SERVICE CARD

HISTORY . . .

■ CONTINUED FROM PAGE 40

office manager, the offices of the S.D.C.E. were moved to larger and more comfortable offices at 19382 James Couzens Highway, Detroit, where the records, filing facilities, etc., were all brought up to date.

Today, with 10 Chapters, a firm footing, and with the following group of national officers and directors the Society is moving forward to greater accomplishments in an important and growing field, DIE CASTING.

President—Ollie Clayton, Detroit.

Vice President—James Sutton, Toledo

Treasurer—Meyer Tenenbaum, Detroit

Executive Secretary — Harris R. Shimel

— DCE —

S.D.C.E. Accepts New Members from Japan

We were pleased to accept as members of the Society of Die Casting Engineers Mr. Waichiro Nakashima and his associate Mr. Takeo Tutumi. The former is Chief of the Foundry Department, Aichi Kogyo Co., Ltd., Division of Toyota Motor Co., Ltd., Kariya-City, Aichi-Pref., Japan, builders of Toyopet automobiles. Mr. Tutumi is First Plant Manager, Toyota Motor Co., Ltd., Toyota-City, Aichi-Pref., Japan.

A delegation of considerable size from Japan plans to attend the S.D.C.E. First National Exposition and Congress.

— DCE —

Die Cast Die Designs Moves to Larger Facilities

The design company of Die Cast Designs has moved to larger facilities at 2071 East Nine Mile Road, Warren, Michigan.

The move reflects the decision of company officials that the additional space was necessary to handle the anticipated future volume of work and to add efficiency to their present operations.

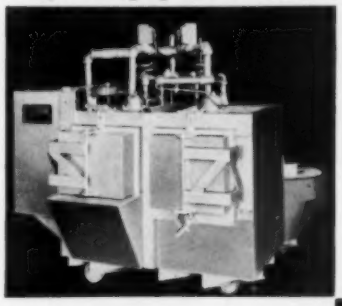
The partners in Die Cast Designs—Messrs. Duncan Hannah and Bud Janke—extend a cordial invitation to everyone to visit the new offices.

KOZMA

NEW! RADIANT ALUMINUM MELTING and HOLDING FURNACES

UNEQUALLED FOR LOW POROSITY ALUMINUM CASTINGS

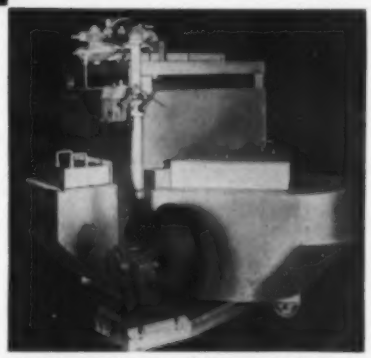
Model RSHCH Melting Furnaces feature the Kozma exclusive "Pre-Temp" charging and sub-surface metal flow virtually eliminating hydrogen pick-up and oxide inclusions, keeping metal at high purity level.



Radiant panel firing provides faster, more uniform heat distribution, eliminates flame impingement and reduces fuel costs.

Model RSHCH Furnaces range in capacity from 300 to 2,000 lbs. per hour with design variations to meet your requirements.

MODEL RH HOLDING FURNACES



are specially designed for use with vacuum or non-vacuum aluminum die casting machines. Roller bearing wheels and a unique dipwell permit integral installation as part of the die casting machine. Bath capacities and dipwell design to meet your requirements.

Kozma Melting and Holding Furnaces are being specified by both die casting machine manufacturers and aluminum producers where highest quality metal is a "must."

There is a Kozma Radiant Aluminum Furnace for every melting and holding need. Write today for complete information.

Also available from Kozma—
New Automatic Ladling Unit
Low Cost — Fast — Accurate

INDUSTRIAL PROCESSING FURNACES SINCE 1928

J. A. KOZMA Company
2471 WYOMING
DEARBORN, MICHIGAN

CIRCLE 33 READERS SERVICE CARD

SEALED CASTING LABORATORY, INC.

IMPREGNATING

POROUS CASTING SEALED PRESSURE TIGHT

AUTHORIZED GOVERNMENT CERTIFICATION

AIRCRAFT — AUTOMOTIVE —— ELECTRONIC

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Reverbale CONTINUOUS Melting & Holding DIP-OUT Furnaces

Increase Production . . . Promote Cooler, Safer Operating Conditions

*Operating efficiencies up to 75% are easily achieved, due entirely to the design of the refractory lining.
*X-ray inspection proves castings have lower dross inclusions.

Reverbale's cooler . . . safer working conditions mean uniform work rate. No loss in operator efficiency due to heat fatigue.

Output: up to 300 lbs. or 900 lbs. per hour

20-page Brochure "Efficiency in Melting" mailed on request.

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CANADIAN AGENT: DREW BROWN LTD., 5410 Ferrier St., Montreal 9

CIRCLE 35 READERS SERVICE CARD

Dis-Die Steels, Inc. In New Location

Dis-Die Steels, Inc. announces it is established in its new location at 25133 Flanders Road, Warren Michigan.

The concern specializes in pre-tempered and hot work steels for die casting and extrusion tools. It stocks and supplies die cast die steels, hot work steels, alloy bars and plates, with complete facilities for burning to shape or saw cutting as required. Dis-Die Steels also supplies flat die forgings, drop forgings and extrusion tooling, according to president Ira Latimer.

COME
NOV. 8 - 11
TO THE SHOW—
SEE WHAT'S NEW!

In Memoriam

We extend our sympathy to Peter J. Tol on the recent passing of his wife after a long illness. Mr. Tol, of Apex Polishing Company, Grand Rapids, Michigan, is Chairman of Western Michigan Chapter—#3 of S.D.C.E.

REBUILT, GUARANTEED DIE CASTING MACHINES
FOR SALE

1—Cleveland 400 ton Aluminum, and 1 Zinc
1—Kux B.H.—18 Zinc 300 ton
3—Lake Erie 300 ton Zinc, late models fully hydraulic
2—Reed-Prentice #1½ Zinc and 1 Aluminum 225 ton
2—Lester 600 ton Aluminum, 1949
1—B. & T. 80 ton Zinc
3—A. B. C. air operated with four 1" diameter tie bars, 1957 several Kux BH-12 (hydraulic) and BA-12 (air operated) 80 ton
1—"Standard" Detroit 500 ton Zinc, modern and very fast

2—Lindberg induction dual-chamber furnaces for Aluminum. 30 KW. (220 volts) practically new
4—Ajax induction furnaces 20 KW. (220 volts)

All our machines are completely rebuilt by experts, and tested under power.

Thirty days operation guarantee.

We will rebuild and modernize your older machines, or accept them in trade. Our machines may be leased or purchased at approximately half new cost, and they will perform as well, as fast, and as long as any new machine.

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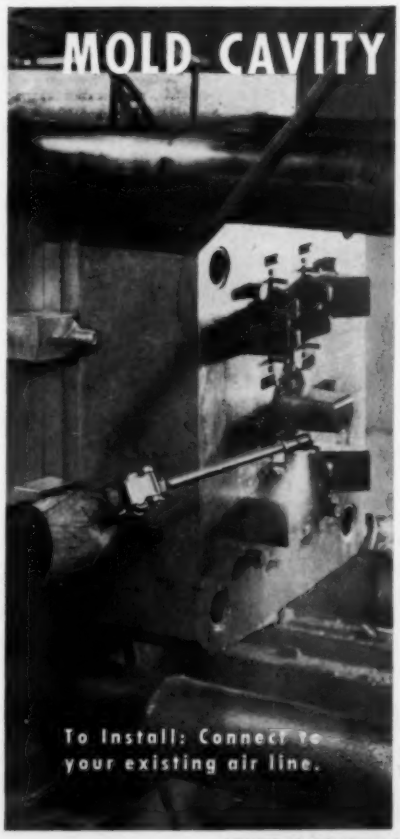
Rayco Welding, Inc. Opens New Plant on West Side

Opening as of November 1, of a new west side plant by Rayco Welding, Inc., 5531 East Eight Mile Road, Warren, Mich., is announced by the concern's owners—Steve Novak and Ken Durr. The company began operations last year.

Rollin Bondar has been named superintendent of the new operation.



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CHAPTER NEWS

■ CONTINUED FROM PAGE 33

one of the most ambitious photographers of equipment and note-takers in the crowd and, as a matter of fact, was the man chosen to receive and compile all notes taken on the trip.

Tremendous enthusiasm evidenced at this meeting was reported by National Executive Secretary Harris Shimel, who was in attendance. Mr. John Miller of the Detroit Chapter also was present.

INDIANA

25 Mr. Clarence Tice—a national trustee of the Society of Die Casting Engineers, and representing Delco-Remy Division of General Motors Corporation—was host to the Indiana Chapter on the occasion of its dinner meeting October 13 at Anderson, Indiana.

A tour of the die cast facilities of the Delco-Remy plant was a highlight of the meeting. The tour featured the automatic casting of both zinc and aluminum on large machines. It was followed by a short talk by plant superintendent D. I. Weatherford, on die casting techniques at Delco.

The group enjoyed a very enlightening tour, which drew an attendance of 83 paid-up members. He added that the tour proved that automation in die casting is a reality at this plant.

The speaker for the September meeting at Kokomo was Mr. Don Colwell, vice president of Apex Smelting. He gave an interesting talk and showed slides of zinc and aluminum and the melting practices and handling of molten aluminum. This was followed by an active question and answer period.

Chairman Bernard C. Dent announced that some problem castings were on display and invited everyone present to look them over and offer their comments.

Mr. Alfred Green, of an Australian die casting concern, was a guest. The group was happy to note also that Mr. John Lapin and two guests made the long trip (180-mile round trip) from Bedford to Kokomo for this meeting.

Chairman Dent commended Chapter Secretary Earl C. Bryant, of Guide Lamp for having done a tremendous job for the chapter this year in his position, and also for having kept the National advised of the group's activities. He sought a full time volunteer Chapter Reporter, to build up reporting of their activities in the DIE CASTING ENGINEER, as urged by National President Ollie Clayton.

To this the editor adds an "Amen" and "thanks—keep it up" to those Secretaries and Reporters who are seeing that we get Chapter News—so we can publish it!

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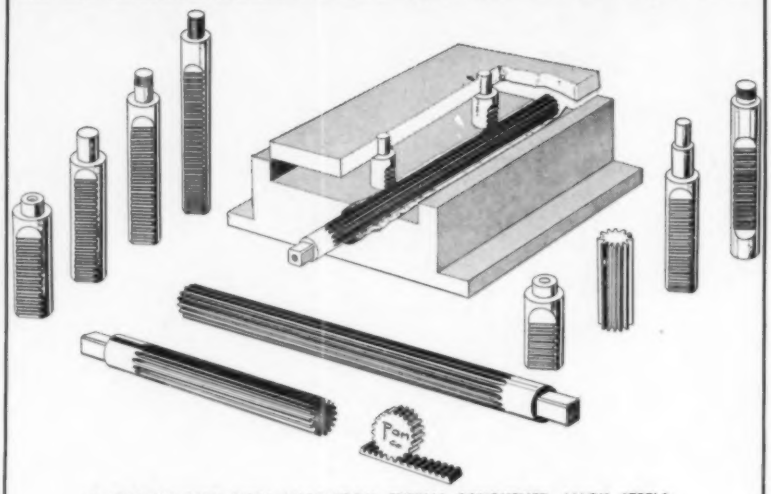

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ADVERTISERS INDEX

Ajax Magnethermic Corporation	34
Alcon Tool and Die	45
Aldridge Industrial Oils, Inc.	45
All State Industries, Inc.	BC
American Rotary Tool Co., Inc.	37
Atlantic Chemicals Company	37
Atols Tool and Mold Corporation	24
B & T Machinery Company	IFC
Belleville Die Shop, Inc.	45
W. J. Bradford Paper Company	44
J. & J. Burning Company	40
Canton Lubricants Co.	40
Cast Metals Tooling Company	45
Cleveland Automatic Machine Company	10
Clifford-Rockwell Company	32
Crucible Steel Company of America	35
Dalkron Tool & Die Corp.	33
DCMT Sales Corp.	9
Detroit Mold Engineering Company	27
Die Cast Machinery, Inc.	36
Dis-Die Steel, Inc.	43
Dodge Steel Company	30
Henning, Bros. & Smith, Inc.	38
Industrial Mfg. Corp.	34
International Foundry Supply Co.	42
Iron Fireman Mfg. Co.	6
J. A. Kozma Company	41
Kux Machine Co.	29
Latrobe Steel Company	4
Lindberg Engineering Company	8
Magnesium Industries, Inc.	42
Nonferrous Metal Alloys Corp.	43
Oakman Mfg. Co.	36
Peerless Gear & Machine Co., Inc.	44
Permanent Mold Die Company, Inc.	34
Pierce-Waller Company	43
Prospect Die & Mold Company	42
Rebmann Products Corp.	38
Reed-Prentice Division	12 & 20
Renell, Inc.	BC
Sealed Casting Laboratory, Inc.	41
Shaw Process Development Corp.	5
G. W. Smith & Sons, Inc.	46
Southern Die Casting & Engineering Co.	36
Special Machine and Engineering, Inc.	BC
Supreme Impression & Mold Co., Inc.	25
A. Triulzi S.A.S.	31
Universal Cyclops Steel Corporation	3
Vanadium-Alloys Steel Company	IBC
Wolverine Die Cast Corporation	32

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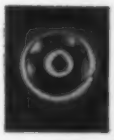

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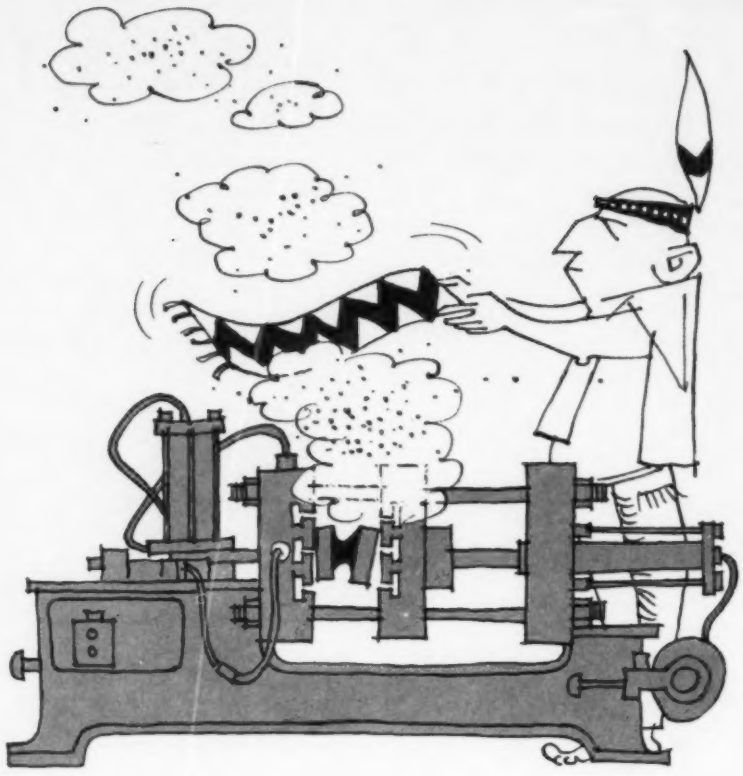

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17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32
33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64
65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96
97	98	99	100	101	102	103	104	105	106	107	108	109	110	111	112
113	114	115	116	117	118	119	120	121	122	123	124	125	126	127	128
129	130	131	132	133	134	135	136	137	138	139	140	141	142	143	144

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